Extending a Pattern

Review   Answer key for this lesson is on the last page.

A **sequence** is a set of numbers arranged in a **pattern**. To find the pattern, look to see how numbers change or repeat.

Example

Find the next number in the sequence.   1, 4, 9, 16, ___

To find the next number in the sequence, you need to find how you go from the first number to the second number. Continue until you see a pattern. Then, use the pattern to find the next number in the sequence.

How does 1 get to 4?   times 4 or plus 3

How does 4 get to 9?   plus 5

How does 9 get to 16?   plus 7

Notice, the pattern of multiplying by 4 only works for the first pair of numbers. So, that is not the pattern.

Let's see how the addition pattern looks.

$$1 \rightarrow 4 \rightarrow 9 \rightarrow 16, \ldots$$
$$+3 \quad +5 \quad +7$$

It seems we are adding by odd numbers 3, 5, 7,…The next odd number is 9. So, add 16 plus 9 for the next number. $16 + 9 = 25$

$$1 \rightarrow 4 \rightarrow 9 \rightarrow 16 \rightarrow 25$$
$$+3 \quad +5 \quad +7 \quad +9$$

So the next number in the sequence is **25**.

The cost of a package depends upon the number of items in the package. If a package contains 70 items, how much will that package cost?

Number of Items	Cost of Package
30	$6
40	$8
50	$10

First pair.   30 → $6

divide by 5 or subtract _____

Second pair.   40 → $8

divide by _____ or subtract 32

Third pair.   50 → $10

divide by _____ or subtract 40

The common pattern is _____ .

So, 70 divided by 5 is _____ .

The cost of a package that contains 70 items is _____ .

Find the next two numbers in the sequence.

1.   2, 6, 18, 54, ☐ , ☐

2.   3, 4, 6, 9, 13, ☐ , ☐

3.   6, 9, 5, 8, 4, ☐ , ☐

4.   32, 16, 8, 4, ☐ , ☐

5. The cost of the postage depends upon the number of stamps you buy. Find how much 9 stamps will cost.

Postage	Total Cost
5	$0.10
6	$0.12
7	$0.14

6. The length of a coat depends upon the height of the person. If the person is 63 inches tall, what should the length of the coat be in inches?

Height	Coat Length
60 inches	50 inches
61 inches	51 inches
62 inches	52 inches

1. If the pattern continues, how much would park officials charge for a van with 10 passengers?

A) $1.60

B) $11.00

C) $11.30

D) $16.00

PARK ENTRANCE FEE	
PASSENGERS	PRICE
1-2	$2.80
3-4	$5.30
5-6	$7.50
7-8	$9.40

2. Which number is missing from the number pattern?

14, _____, 11, 9.5, 8

F) 13.5   G) 12.9   H) 12.5   J) 11.9

3. Which sequence follows the rules?

A) 6, 14, 30, 62

B) 3, 4, 6, 10

C) 2, 4, 8, 16

D) 2, 0, ⁻2, ⁻4

Rules

❶ Double the number.

❷ Then subtract 2.

4. What number belongs in the shaded box?

1	3
9	2

4	9
81	5

3	5
	2

F) 8   G) 10   H) 25   J) 36

5. Each time the theater has been expanded, 20% more seats have been added. It has been expanded twice. How many seats does the theater have now?

⇩ Finish the chart! ⇩	
Originally	500
1st Expansion	
2nd Expansion	

A) 120   B) 540   C) 700   D) 720

6. Which number could be placed in the ☐ to complete the pattern?

$1, \frac{7}{8}, \frac{3}{4}, \boxed{}, \frac{1}{2}, \frac{3}{8}$

F) $\frac{1}{4}$ G) $\frac{1}{8}$ H) $\frac{5}{8}$ J) $\frac{3}{4}$

           Extending a Pattern

A: Answer Key

Guided Practice

24
5
5
divide by 5
14
$14

Practice A

1) 162, 486

2) 18, 24

3) 7, 3

4) 2, 1

Practice B

5) $0.18

6) 53 inches

Quiz

1) B $11.00

2) H   12.5

3) B   3, 4, 6, 10

4) H   25

5) D   720

6) H $\frac{5}{8}$

Finding the Mean

Determine the mean (average) of a given set of real-world data (no more than five two-digit numbers).

People take surveys and do experiments to gather information. This information is called **data**. Often, data is shown as collections or sets of numbers. The study of data is called **statistics**.

Finding the **mean** is one way to describe data. You find the mean of a set of data by adding the numbers in the set, and then dividing the sum by the number of items in that set.

Example A

Find the mean of the set of data.   1, 2, 1, 4, 3, 1

STEP 1   Add the numbers. $1 + 2 + 1 + 4 + 3 + 1 =$ **12**

STEP 2   Count the number of items.   6 items

STEP 3   Divide the sum by 6. $12 \div \mathbf{6} = \mathbf{2}$

The mean of the set of data is **2**.

Example B

Kristin counted 24, 26, 19, 28, and 13 students in five college history classes. Find the mean number of students.

STEP 1   Add the number of students. $24 + 26 + 19 + 28 + 13 =$ **110**

STEP 2   Divide by the number of classes. $110 \div \mathbf{5} = \mathbf{22}$

The mean number of students is **22**.

Example C

A bank gives the daily balance of an account. For three days, the balance is $12.00, $9.00, and $6.00. Find the average daily balance, or mean, for these days.

STEP 1   Add the 3 balances. $12 + 9 + 6 = \textbf{27}$

STEP 2   Divide by the number $27 \div \textbf{3} = \textbf{9}$
of days.

The average daily balance for the three days is **$9.00**.

Guided Practice

1.   Find the mean temperature for four days in Alaska. The temperatures were 2°, ⁻5°, ⁻10°, and ⁻7°.

Add the degrees. $2 + (^-5) + (^-10) + (^-7) = {}^-20$

Divide by the number $^-20 \div \boxed{} = {}^-5$
of days.

The mean temperature was $\boxed{}°$.

2.   Juan made $12.00, $14.00, $14.00, $12.00, and $13.00 baby-sitting for five days. What was the mean amount he made?

Add the amounts. $\boxed{} + \boxed{} + \boxed{} + \boxed{} + \boxed{} = \boxed{}$

Divide by the number
of days. $\boxed{} \div 5 = \boxed{}$

The mean amount is $\$\boxed{}$.

Practice A

Solve each problem. Show your work. Use another sheet of paper if needed.

1.   A scout troop records the amount of cookies its members sold each day for a week: 12, 15, 19, 18, 30, 54, and 62 boxes. What was the mean number of boxes they sold per day for the week?

2. Mrs. Diaz keeps the school attendance. The attendance for the week of May 12th was 260, 277, 254, 299, and 280. What was the mean number of students that attended school the week of May 12th?

3. A shipping clerk records the weight of each package he sends out daily. The weights in pounds of the packages mailed on Tuesday were 10.5, 9.4, 10.6, 9.5, and 10.0. What was the mean weight in pounds for the packages mailed on Tuesday?

4. Rose writes down all of her math quiz scores. Her math quiz scores are 98, 78, 84, and 96. What is the mean of her math quiz scores?

5. Howard keeps track of the temperatures for a local newspaper. So far on Wednesday, he recorded the following temperatures: 78°F, 90°F, 85°F, and 87°F. Later he records 86°F. Is 86°F above or below the mean of the four temperatures he recorded earlier in the day?

1. The numbers of houses sold last month by 10 real estate agents were 4, 2, 5, 1, 4, 5, 5, 4, 5, and 7. What is the mean number of houses sold?

   A) 42   **B)** 4   **C)** 4.2   **D)** 5

2. Stacy has taken 3 math tests. Her average so far is 89. What does Stacy have to score on her next test to increase her average by one whole point?

   F) 89   **G)** 90   **H)** 91   **J)** 93

3. How many racers beat the average time?

   A) 1

   B) 2

   C) 3

   D) 4

Racer	Seconds
Leon	54
Cody	48
Jeff	50
Karim	53
Ben	50

4. How many students are below the mean height?

   F) 2

   G) 3

   H) 4

   J) 5

Heights	
Jan	48 cm
Cohen	51 cm
Frank	56 cm
Elisa	45 cm
Zach	60 cm

5. The classes at Southside High School are not all the same size. The principal wants to give a report to the school board. The number of students in each class are as follows: 32, 23, 28, 15, 17. How many classes are larger than the mean class size?

   A) 2

   B) 4

   C) 3

   D) 1

A: Answer Key

Guided Practice

1) 4
$^-$5

2) $12, $14, $14, $12, $13, $65
$65, $13
13

Practice

1) 30 boxes

2) 274 students

3) 10 pounds

4) 89

5) 86°F is above the mean of 85°F.

Quiz

1) C   4.2

2) J   93

3) B   2

4) G   3

5) A   2

Finding the Median

Review   Answer key for this lesson is on the last page.

The **median** is the middle number when a set of numbers is ordered from least to greatest. The median can be used instead of the mean as another way to describe the middle of a set of numbers.

Sometimes, there is an odd number of numbers in the set. If so, the median is the middle number of the ordered set.

Example A

Seven students sold tickets to the basketball game. The number of tickets each student sold is below.

$$14, 19, 8, 3, 16, 5, 10$$

Find the median number of basketball tickets sold.

STEP 1   Arrange the numbers in order from **least to greatest**.

          3   5   8   10   14   16   **19**
          least   **greatest**

STEP 2   Find the number in the middle.

          3̶   5   8   10   14   16   1̶9̶

          3̶   5̶   8   10   14   1̶6̶   1̶9̶

          3̶   5̶   8̶   (10)   1̶4̶   1̶6̶   1̶9̶

          10 is the middle number.

So, the median number of basketball tickets sold is **10 tickets**.

Sometimes, there is an even number of numbers in the set. If so, the median is the average of the two middle numbers, or the number that is halfway between the two middle numbers.

Example B

Eight students sold tickets to the soccer game. The number of tickets each student sold is below.

$$14, 19, 8, 3, 16, 5, 10, 20$$

Find the median number of soccer tickets sold.

STEP 1   Arrange the numbers in order from **least to greatest**.

3   5   8   10   14   16   19   **20**
least   **greatest**

STEP 2   There is an even number of numbers in this set. So, there will be two middle numbers. Find the two numbers in the middle.

3̸   5   8   10   14   16   19   2̸0

3̸   5̸   8   10   14   16   1̸9   2̸0

3̸   5̸   8̸   (10   14)   1̸6   1̸9   2̸0

10 and 14 are the middle numbers.

STEP 3   Find the average of the two middle numbers (the number that is halfway between the two middle numbers). To do this, first add the two numbers. Then, divide this sum by 2.

$10 + 14 = \mathbf{24}$
$\mathbf{24} \div 2 = \mathbf{12}$

So, the median number of soccer tickets sold is **12 tickets**.

Mr. Jones wrote down one student's quiz scores. Find the median quiz score.

85   84   97   64   100   54

Arrange the numbers in order from least to greatest.

☐   64   84   ☐   97   ☐
least   **greatest**

There is an ☐ number of numbers in this set. So, there will be ☐ middle numbers. Find the numbers in the middle.

54   64   84   85   97   100

☐ and ☐ are the middle numbers.

Find the average of the two middle numbers. To do this, first ☐ the two numbers. Then, divide this sum by ☐.

84 + ☐ = ☐
☐ ÷ 2 = ☐

So the median quiz score is ☐.

Practice

Solve each problem. Show your work. Use another sheet of paper if needed.

1. Seven students sold tickets to the play. Find the median number of tickets sold.

24   28   31   25   35   39   27

2. Joetta measured the length of each piece of fabric that she owns. Find the median length in yards of her fabric.

7   3   4   2

3. Each day the student attendance changes. Find the median number of students.

374   302   299   360   380

4. Hoon read six books with different numbers of pages. Find the median number of pages.

357   255   541   472   102   98

5. Juan recorded the temperature every hour starting at 8 A.M. and ending at 2 P.M. Then, he wrote down the temperature of 57° at 6 P.M. Is 57° higher or lower than the median of the original seven temperatures he recorded?

49° at 8 A.M.   53° at 9 A.M.
50° at 10 A.M.   55° at 11 A.M.
62° at 12 P.M.   60° at 1 P.M.
64° at 2 P.M.

1. The drying times in hours for a new paint are as follows: 1.5, 0.8, 2.4, 0.5, 1.3, 2.7, 3.6, 3.2, 2.0, 1.9. What is the median drying time?

   A) 1.99 hours   **B)** 1.95 hours   **C)** 1.9 hours   **D)** 1.5 hours

2. A car salesperson sold four cars in one week. The cars that were sold cost $6,500; $2,550; $7,000; and $10,550. What is the median price of the cars that were sold?

   F) $6,000   **G)** $6,750   **H)** $7,000   **J)** $7,650

3. Here are the annual salaries of ten families: $54,000; $39,000; $32,000; $37,500; $32,000; $36,750; $32,000; $35,250; $32,000; $25,500. What is the median income?

   A) $28,400   **B)** $33,625   **C)** $32,000   **D)** $25,000

4. The mileage reported on a fleet of rental cars for one month is as follows: 8400, 7505, 6950, 8400, 4700, 5995, 9225, 525, 7815, 7115. What is the median of the fleet's mileage?

   F) 6663 mi.   **G)** 7310 mi.   **H)** 8400 mi.   **J)** 8700 mi.

5. The principal at Southside High School is reporting on class size to the school board. The numbers of students in each class are as follows: 32, 23, 28 15, 17, 21, 9, 7, 28. What is the median class size?

   A) 17   **B)** 28   **C)** 15   **D)** 21

6. The low temperatures during the month of January broke all records. The temperatures (in degrees Fahrenheit) for the first 6 days of the month were as follows: ⁻3, 8, ⁻5, 1, 8, ⁻3. What was the median temperature for this period?

   F) 1   **G)** ⁻2   **H)** ⁻1   **J)** 4

A: Answer Key

Guided Practice

54, 85, 100
even
two, 84, 85
add, 85, 169
2, 169, 84.5
84.5

Practice

1)   28 tickets

2)   3.5 yards

3)   360 students

4)   306 pages

5)   57° is higher than the median
of 55°.

Quiz

1)   B   1.95 hours

2)   G $6,750

3)   B $33,625

4)   G   7310 mi.

5)   D   21

6)   H $^{-}1$

Finding the Volume of a Rectangular Solid

Apply the given formula to find the area of a circle, the circumference of a circle, or the volume of a rectangular solid.

Review   Answer key for this lesson is on the last page.

A **space figure** is a three-dimensional figure that has length, width, and height. A rectangular prism and a cube are space figures.
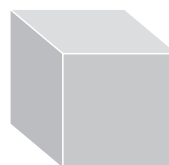
Rectangular Prism   Cube

Volume is the amount of space inside a space figure. Volume is measured in cubic units. To find the volume of a rectangular prism, use this formula:

$$\text{Volume} = \text{length} \times \text{width} \times \text{height}$$

Example A

Find the volume of this prism.

STEP 1   Write the formula.
Place the values you know
in the formula.
Volume = length × width × height
Volume = **10** in × **6** in × **7** in

7 in
6 in
10 in
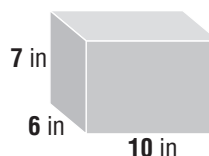
STEP 2   Multiply.
Volume = 420 cu in

The volume of the prism is **420 cubic inches**, or 420 in^3. Just as in^2 is read "square inches," in^3 is read "cubic inches."

Example B

Find the volume of this cube.

STEP 1 Write the formula.
Place the values you know
in the formula.
Volume = length × width × height
Volume = **4** cm × **4** cm × **4** cm

4 cm

4 cm

4 cm
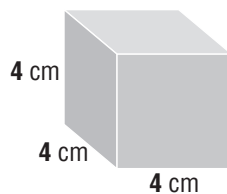
STEP 2 Multiply.
Volume = 64 cu cm

The volume of the cube is **64 cubic centimeters**.

Guided Practice

A storage shed needs a sand floor for drainage. The length of the floor is 5 feet, the width
is 2.5 feet, and the height is 1 foot. What is the volume of the sand floor?

Write the volume formula.

Let $l =$ ⬚ ft, $w =$ ⬚ ft, and $h =$ ⬚ ft.

Multiply.

Volume = length × _____ × height

Volume = ⬚ ft × ⬚ ft × ⬚ ft

Volume = ⬚ cu ft

So, the volume of the sand floor is _____ cubic feet.

Find each volume. Show your work. Use another sheet of paper if needed.

1.

7 cm

3 cm

3 cm

2.

3 in.

10 in.

5 in.

3.

8 mm

8 mm

8 mm
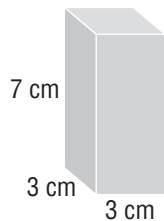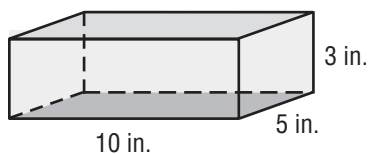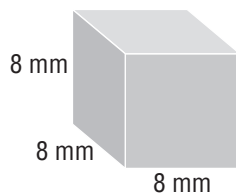
4. Allen has the fish tank shown. What is the volume of the fish tank?
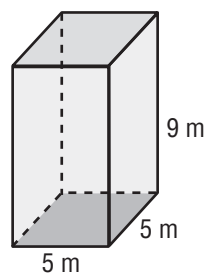
18 in.

24 in.

14 in.
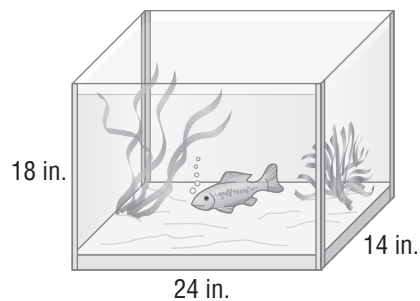
5. Filomena has the fish tank shown. She fills the tank with water. She leaves 1 inch of space between the waterline and the top of the tank. How much water is in the tank?

1. Find the volume of a cube that measures 9 inches on an edge.

    A) 27 cubic inches

    B) 81 cubic inches

    C) 125 cubic inches

    D) 729 cubic inches

2. What is the volume of the air in an otherwise empty room that is 9 ft by 12 ft with an 8-ft-high ceiling?

    F) 96 cubic feet

    G) 204 cubic feet

    H) 564 cubic feet

    J) 864 cubic feet

3. Jeremy is building a sandbox for his children. The sandbox measures 10 feet by 15 feet. What volume of sand will Jeremy need to buy in order to fill the sandbox to a constant height of 2 feet?

    A) 150 cubic feet

    B) 300 cubic feet

    C) 200 cubic feet

    D) 1500 cubic feet

4. Find the volume of the prism.

    F) 19 m^3

    G) 225 m^3

    H) 270 m^3

    J) 300 m^3

    9 m

    5 m

    5 m

5. Find the volume of the prism.

    A) 25 m^3

    B) 31 m^3

    C) 240 m^3

    D) 336 m^3

    8 m

    15 m

    2 m
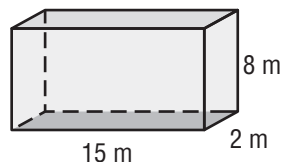
A: Answer Key

Guided Practice

5, 2.5, 1, width
5, 2.5, 1
12.5
12.5

Practice

1) 63 cu cm

2) 150 cu in.

3) 512 cu mm

4) 6,048 cu in.

5) 5,712 cu in.

Quiz

1) D 729 cubic inches

2) J 864 cubic feet

3) B 300 cubic feet

4) G 225 m³

5) C 240 m³

Adding and Subtracting with Like Denominators

Choose the correct letter for each answer.

1. **Mr. Riley must build 10 birdhouses for his customers. So far he has completed $5\frac{3}{4}$ birdhouses. How many more birdhouses must he build?**

   A $15\frac{3}{4}$ birdhouses

   B $5\frac{1}{4}$ birdhouses

   C $4\frac{1}{4}$ birdhouses

   D $3\frac{3}{4}$ birdhouses

   E   NH

2. **Becka ate $\frac{3}{12}$ of the bagels. Scott ate $\frac{5}{12}$ of the bagels. What fraction of the bagels did they eat?**

   F $\frac{1}{6}$ J $\frac{2}{3}$

   G $\frac{1}{2}$ K   NH

   H $\frac{7}{12}$

3. $\frac{11}{12} + \frac{5}{12} =$

   A $\frac{1}{2}$ D $1\frac{1}{2}$

   B $1\frac{1}{3}$ E   NH

   C $1\frac{5}{12}$

4. **Which sum is less than 1?**

   F $\frac{7}{10} + \frac{3}{10}$ H $\frac{2}{3} + \frac{2}{3}$

   G $\frac{3}{5} + \frac{3}{5}$ J $\frac{4}{15} + \frac{5}{15}$

5. **Erica bought $3\frac{1}{4}$ pounds of hamburger. Her meatloaf recipe needs $2\frac{3}{4}$ pounds of hamburger. How many pounds will she have left?**

   A $\frac{1}{4}$ pound   D $1\frac{1}{4}$ pounds

   B $\frac{1}{2}$ pound   E   NH

   C $\frac{3}{4}$ pound

6. $7\frac{1}{3} - 2\frac{2}{3} =$

   F $3\frac{2}{3}$ J $5\frac{1}{3}$

   G $4\frac{1}{3}$ K   NH

   H $4\frac{2}{3}$

7. **Kendall bought $3\frac{7}{8}$ yards of red ribbon and $2\frac{5}{8}$ yards of yellow ribbon. How much ribbon does Kendall have in all?**

   A $1\frac{1}{4}$ yards   D $6\frac{3}{4}$ yards

   B $5\frac{1}{2}$ yards   E   NH

   C $6\frac{1}{4}$ yards

Estimating Quotients

Choose the correct letter for each answer.

1. **The gardening committee would like to plant a tree every 9 feet along the driveway leading up to the school. If the driveway is 534 feet long, about how many trees will they need to buy?**

   A   About 40 trees

   B   About 60 trees

   C   About 70 trees

   D   About 80 trees

2. **Ricardo scored a total of 4005 points in 19 turns at the target game. About how many points did he get each turn?**

   F   About 10 points

   G   About 20 points

   H   About 200 points

   J   About 2,000 points

3. **Estimate $63\overline{)5,392}$.**

   A   9   C   100

   B   90   D   900

4. **Mrs. Jones drove 628 miles in 21 days. Which of these division problems would give a good estimate of the number of miles she drove per day?**

   F $1,000 \div 20$ H $600 \div 20$

   G $600 \div 30$ J $400 \div 20$

5. **A restaurant serves lemonade in 9-ounce glasses. The lemonade machine holds 262 ounces. About how many glasses does the machine hold?**

   A   About 50 glasses

   B   About 40 glasses

   C   About 30 glasses

   D   About 20 glasses

6. **Estimate $34,621 \div 72$.**

   F   200   H   400

   G   300   J   500

7. **Jane scored 9,059 points playing through 28 levels of a video game. About how many points did she score at each level?**

   A   About 300 points

   B   About 240 points

   C   About 30 points

   D   About 24 points

8. **A store display can hold 4 hats on each hanger. About how many hangers would be needed to display 275 hats?**

   F   About 60 hangers

   G   About 70 hangers

   H   About 80 hangers

   J   About 90 hangers

Adding and Subtracting Greater Whole Numbers

Choose the correct letter for each answer.

1. 72,189
    + 23,556

    A 96,635   **D** 45,633
    B 95,745   **E** NH
    C 95,635

2. **William scores 79,890 points on a computer game. Sarah scores 58,009 points. How many more points did William score than Sarah?**

    F 21,881 points
    G 21,891 points
    H 21,899 points
    J 137,899 points
    K NH

3. **36,042 + 7,898 =**

    A 33,940
    B 43,830
    C 43,930
    D 43,940
    E NH

4. **74,239 − 14,855 =**

    F 89,094   **J** 59,384
    G 60,624   **K** NH
    H 59,624

5. **Juan and Chris are partners. What is their total score?**

    A 66,033
    B 58,878
    C 37,976
    D 37,958
    E NH

Score Sheet	
Game	**Score**
Sean	35,908
Chris	22,970
Juan	14,988
Tamika	43,063
Yo	12,309

6. 62,005
    − 11,003

    F 51,002   **J** 71,002
    G 51,008   **K** NH
    H 53,002

7. **4,445 + 821 + 5,966 =**

    A 10,411   **D** 11,332
    B 11,132   **E** NH
    C 11,232

8. **Jermaine has 45,334 points on a computer game. Tyler has 5,899 points. How many more points does Jermaine have?**

    F 39,335   **J** 40,565
    G 39,435   **K** NH
    H 40,465

Polygons

Choose the correct letter for each answer.

1. **Which of the following is NOT a polygon?**

    A

    B

    C
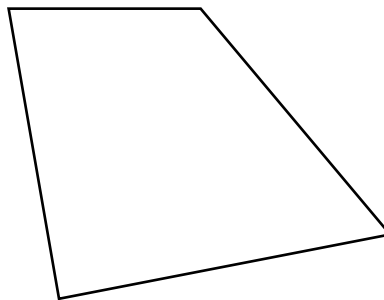
    D
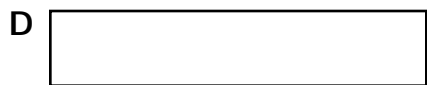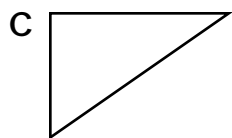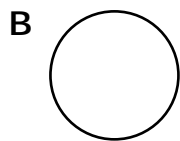
2. **I am the same shape as a stop sign. I am a polygon. I have 8 sides. What is my name?**

    F Octagon

    G Pentagon

    H Quadrilateral

    J Triangle

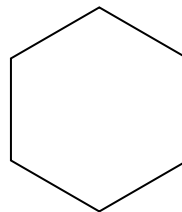3. **Nikki is arranging her pencils to make a polygon. What is the fewest number of pencils she will need?**

    A 1 **C** 3

    B 2 **D** 4

4. **What is the name of this figure?**

    F Octagon **H** Quadrilateral

    G Pentagon **J** Triangle

5. **What is the name of this figure?**

    A Rectangle **C** Hexagon

    B Pentagon **D** Octagon

6. **I am the shape of a famous building in Arlington, Virginia. I am named for a polygon. I have 5 sides. What is my name?**

    F Octagon

    G Pentagon

    H Quadrilateral

    J Triangle

Decimal Place Value

Choose the correct letter for each answer.

1. **Which is the word name for this number: 3.62?**

   A Three and sixty-two hundredths

   B Three hundred sixty-two hundredths

   C Three and sixty-two tenths

   D Three hundred sixty-two tenths

2. **Ashley has sixty-three cents. Which is this amount written as a decimal?**

   F $0.063   **H** $6.03

   G $0.63   **J** $6.30

3. **Patrick said that the rain gauge shows 4.68 inches of rain. What is the place value of the 8 in 4.68?**

   A Tens   **C** Tenths

   B Ones   **D** Hundredths

4. **Which decimal number has an 8 in the tens place, a 4 in the ones place, a 6 in the hundredths place, and a 1 in the tenths place?**

   F 684.1   **H** 84.16

   G 84.61   **J** 48.16

5. **A strawberry weighing 8.17 ounces was grown in England in 1983. What is the value of the digit 1 in 8.17?**

   A Tens   **C** Tenths

   B Ones   **D** Hundredths

6. **Which number shows the decimal 6 and 2 hundredths?**

   F 0.062   **H** 6.02

   G 0.62   **J** 6.2

7. **Which is the word name for this number: 17.14?**

   A Seven and fourteen hundredths

   B Seventeen and fourteen

   C Seventeen and fourteen tenths

   D Seventeen and fourteen hundredths

8. **Used skates cost $13.97. How much money is represented by the digit in the hundredths place?**

   F 10 dollars

   G 3 dollars

   H 7 cents

   J 9 cents

Dividing Two-Digit Numbers

Choose the correct letter for each answer.

1. $42 \div 3 =$

   A   12

   B   13

   C   14

   D   15

2. $7\overline{)77}$

   F   8   J   13

   G   10   K   NH

   H   12

3. Meridith has 36 eggs. She needs 3 eggs for one batch of cookies. How many batches of cookies can she make?

   A   12 batches   D   19 batches

   B   13 batches   E   NH

   C   15 batches

4. Florence made 84 pot holders for the craft show. The pot holders are sold in sets of 4 each. How many sets of pot holders did Florence make?

   F   10 sets

   G   20 sets

   H   21 sets

   J   23 sets

   K   NH

5. Ninety-one stuffed animals are sent to 7 hospitals. Each hospital receives the same number of animals. How many animals does each hospital receive?

   A   10 animals

   B   13 animals

   C   14 animals

   D   15 animals

   E   NH

6. Cloyd collected 72 different postcards while on vacation. He put 6 on each page of his scrapbook. How many pages will Cloyd need to put all the postcards in his scrapbook?

   F   12 pages   J   423 pages

   G   13 pages   K   NH

   H   14 pages

7. $65 \div 5 =$

   A   12   D   15

   B   13   E   NH

   C   14

8. $2\overline{)58}$

   F   24   J   116

   G   27   K   NH

   H   34

Mental Math: Dividing Multiples of 10, 100, and 1,000

Choose the correct letter for each answer.

1. $630 \div 7$

   A 7

   B 9

   C 70

   D 90

   E NH

2. **The bakery uses 560 cups of flour to make bread each day. If each loaf of bread needs 7 cups of flour, how many loaves does the bakery bake each day?**

   F 60 loaves

   G 70 loaves

   H 80 loaves

   J 90 loaves

   K NH

3. **A jet traveled 4,200 miles in 6 hours. It went the same number of miles each hour. What was the jet's speed in miles per hour?**

   A 70 miles per hour

   B 170 miles per hour

   C 700 miles per hour

   D 770 miles per hour

   E NH

4. $16,000 \div 4$

   F 4

   G 40

   H 400

   J 4,000

   K NH

5. $3\overline{)90}$

   A 30

   B 60

   C 90

   D 300

   E NH

6. **There were 2,000 people who applied for the job openings at Great Foods. The company plans to interview the same number of people each day for 5 days. How many people will Great Foods interview each day?**

   F 400 people

   G 200 people

   H 40 people

   J 20 people

   K NH

7. **A machine puts 8 flashlight batteries in each package. In one hour, the machine packed 640 batteries. How many packages of flashlight batteries did the machine fill in that hour?**

   A 8 packages

   B 80 packages

   C 90 packages

   D 140 packages

   E NH

8. $6\overline{)4,800}$

   F 8

   G 80

   H 800

   J 8,000

   K NH

Estimating Products

Choose the correct letter for each answer.

1. **One package contains 39 animal stickers. About how many animal stickers are in 22 packages?**

   A   About 400 stickers

   B   About 800 stickers

   C   About 8,000 stickers

   D   About 9,000 stickers

2. **The zoo ordered 28 cases of lettuce. Each case of lettuce contained 18 heads of lettuce. About how many heads of lettuce did the zoo order?**

   F   About 60 heads of lettuce

   G   About 80 heads of lettuce

   H   About 600 heads of lettuce

   J   About 800 heads of lettuce

3. **Estimate 817 × 89.**

   A   6,400   C   64,000

   B   7,200   D   72,000

4. **Which is the most reasonable estimate of 42 × 73?**

   F   180   H   2,100

   G   1,800   J   2,800

5. **At one level in a computer game, each target hit scores 82 points. Beverly hit 27 targets at that level. About how many points did Beverly score?**

   A   About 240 points

   B   About 2,400 points

   C   About 24,000 points

   D   About 240,000 points

6. **Estimate 7,298 × 37.**

   F   210,000   H   280,000

   G   240,000   J   320,000

7. **Estimate 59 × 347.**

   A   18,000   C   180,000

   B   24,000   D   240,000

8. **There are 24 hours in one day. There are 365 days in one year. About how many hours are there in one year?**

   F   About 6,000 hours

   G   About 8,000 hours

   H   About 60,000 hours

   J   About 80,000 hours

Dividing Greater Numbers

Choose the correct letter for each answer.

1. $6\overline{)3,156}$

   A 326 **D** 536
   B 494 **E** NH
   C 526

2. **Duane wants to put his 549 baseball cards in 9 albums. He wants the same number in each album. How many cards should he put in each album?**

   F 63 cards **J** 60 cards
   G 62 cards **K** NH
   H 61 cards

3. **The Sneaker Store has 2,912 pairs of shoes stored in the back. If there are 8 rows and each row has an equal number of shoes, how many pairs are in each row?**

   A 278 pairs **D** 464 pairs
   B 364 pairs **E** NH
   C 384 pairs

4. **2,364 ÷ 4 =**

   F 491 **J** 691
   G 526 **K** NH
   H 591

5. **A carrying case holds 5 CDs. How many cases would be needed to hold 235 CDs?**

   A 470 cases **D** 45 cases
   B 47 cases **E** NH
   C 6 cases

6. $7\overline{)9,247}$

   F 132 **J** 1,321
   G 321 **K** NH
   H 1,131

7. **562 ÷ 2**

   A 281 **D** 181
   B 271 **E** NH
   C 231

8. **A nursery has 864 tomato sprouts. If they put 3 sprouts in each planter, how many planters can they fill?**

   F 222 planters
   G 236 planters
   H 268 planters
   J 288 planters
   K NH

Mental Math: Division Patterns

Choose the correct letter for each answer.

1. **720 ÷ 9 =**

   A 8,000   D 8

   B 800   E NH

   C 80

2. **Alfie had 280 booklets. He placed them into 7 equal stacks. How many booklets were in each stack?**

   F 14 booklets J 50 booklets

   G 20 booklets K NH

   H 30 booklets

3. **An airplane flew 5,400 miles in 9 hours. It flew the same number of miles each hour. How many miles did the plane fly in 1 hour?**

   A 6 miles   D 6,000 miles

   B 60 miles   E NH

   C 600 miles

4. **2,800 ÷ 4 =**

   F 7,000   J 7

   G 700   K NH

   H 70

5. **Groups of 5 people can go through an exhibit at the same time. How many trips will it take for 250 people to go through the exhibit?**

   A 50 trips   D 500 trips

   B 245 trips   E NH

   C 255 trips

6. **There were 90 singers in a choir. The leader separated them into 3 equal groups of altos, sopranos, and tenors. How many altos were in the choir?**

   F 27 altos   J 300 altos

   G 30 altos   K NH

   H 270 altos

7. **3,600 ÷ 6 =**

   A 6,000   D 6

   B 600   E NH

   C 60

8. **A patient takes 2,400 mg of medicine a day. The medicine is taken in three equal doses. How much medicine does the patient take in each dose?**

   F 8 mg   J 800 mg

   G 80 mg   K NH

   H 300 mg

Range and Mode

Ages of Pets	
Pet	**Age**
Cat	7
Dog	8
Rabbit	3
Canary	I
Hamster	3

1.

Cat   Dog   Rabbit   Canary

○   ○   ○   ○

2.

○ Cat and dog   ○ Rabbit and hamster

○ Canary and hamster   ○ Cat and canary

3.

I   3   7   8

○   ○   ○   ○

4.

5 years   6 years   7 years   8 years

○   ○   ○   ○

Oral Directions *Fill in the* ○ *for the correct answer.*

#1. Which pet is the oldest?
#2. Which two pets are the same age?

#3. How old is the canary?
#4. What is the difference in age between the oldest and youngest pet?

Adding and Subtracting with Unlike Denominators

Example

Find $\frac{4}{5} - \frac{2}{3}$.

Step 1 Rewrite the fractions using a common denominator.

$$\overset{\times 3}{\underset{\times 3}{\frac{4}{5} = \frac{12}{15}}}$$

$$\overset{\times 5}{\underset{\times 5}{\frac{2}{3} = \frac{10}{15}}}$$

Step 2 Subtract the new fractions.

$$\begin{array}{r} \frac{4}{5} = \frac{12}{15} \\ -\frac{2}{3} = \frac{10}{15} \\ \hline \frac{2}{15} \end{array}$$
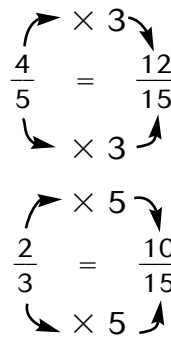
$\frac{2}{15}$ is in simplest form.

Write answers in simplest form.

1. $\frac{2}{3} - \frac{1}{6} = $ _____

2. $\frac{4}{5} + \frac{3}{10} = $ _____

3. $\frac{3}{4} - \frac{1}{2} = $ _____

4. $\frac{5}{6} + \frac{1}{2} = $ _____

5. $1\frac{5}{8} - 1\frac{1}{4} = $ _____

6. $\frac{13}{15} - \frac{1}{2} = $ _____

7. $2\frac{1}{2} + \frac{6}{7} = $ _____

8. $3\frac{1}{9} - 2\frac{1}{2} = $ _____

9. $\frac{9}{12} + \frac{1}{10} = $ _____

10. $3\frac{3}{4} + 2\frac{1}{6} = $ _____

11. $5\frac{1}{3} - 2\frac{5}{7} = $ _____

12. $\frac{2}{15} + \frac{1}{9} = $ _____

Name_____

Adding and Subtracting with Unlike Denominators (continued)

Write answers in simplest form.

13. $4\frac{3}{4} - 2\frac{1}{8} =$ _____   **14.** $3\frac{1}{6} - 2\frac{2}{5} =$ _____   **15.** $\frac{4}{5} + \frac{1}{2} =$ _____

16. $7\frac{1}{2} - \frac{1}{18} =$ _____   **17.** $3\frac{4}{7} + 1\frac{3}{8} =$ _____   **18.** $\frac{7}{10} - \frac{1}{4} =$ _____

19. $\frac{7}{10}$ **20.** $2\frac{3}{4}$ **21.** $1\frac{8}{9}$ **22.** $5\frac{4}{15}$

$+\frac{1}{6}$ $-2\frac{5}{16}$ $+\frac{1}{6}$ $-1\frac{3}{5}$

_____   _____   _____   _____

23. Mental Math Add the following: $\frac{3}{7} + 5\frac{2}{19} + \frac{4}{7}$.   _____

24. Will has a poster that is $28\frac{1}{8}$ inches wide. He wants to
put it into a frame whose opening is only $24\frac{1}{2}$ inches
wide. How much will he have to cut from the poster?   _____

25. On Saturday Patti spent $2\frac{1}{3}$ hours playing soccer,
$\frac{3}{4}$ hour finishing homework, and $\frac{7}{8}$ hour writing a
letter. What was the total time spent on these activities?   _____

Test Prep Choose the correct letter for the answer.

26. Find $2\frac{5}{7} - \frac{7}{8}$.

   A $2\frac{47}{56}$ **B** $1\frac{47}{56}$ **C** $\frac{47}{56}$ **D** $1\frac{54}{56}$

Adding and Subtracting with Like Denominators

Example 1

Find $1\frac{3}{6} + 3\frac{4}{6} + \frac{5}{6}$.

Step 1 Add the fractions.

$$
\begin{array}{r}
1\frac{3}{6} \\
3\frac{4}{6} \\
+\ \frac{5}{6} \\
\hline
\frac{12}{6}
\end{array}
$$

Step 2 Add the whole numbers.

$$
\begin{array}{r}
1\frac{3}{6} \\
3\frac{4}{6} \\
+\ \frac{5}{6} \\
\hline
4\frac{12}{6}
\end{array}
$$

Step 3 Check to see if you can write the fraction in simplest form.

$$4\frac{12}{6} = 4 + 2$$

$$= 6$$

Example 2

Find $4\frac{1}{7} - 1\frac{2}{7}$.

Step 1 $\frac{1}{7} < \frac{2}{7}$, so before you subtract, rename $4\frac{1}{7}$ to show more sevenths.

$$
\begin{array}{l}
4\frac{1}{7} = 3\frac{8}{7} \\
\quad -\ 1\frac{2}{7}
\end{array}
$$

Step 2 Subtract the fractions. Then subtract the whole numbers.

$$
\begin{array}{r}
3\frac{8}{7} \\
-\ 1\frac{2}{7} \\
\hline
2\frac{6}{7}
\end{array}
$$

Step 3 Check to see if you can write the fraction in simplest form.

$$2\frac{6}{7}$$

Add or subtract. Write answers in simplest form.

1.
$$
\begin{array}{r}
2\frac{2}{3} \\
+\ 1\frac{1}{3} \\
\hline
\end{array}
$$

2.
$$
\begin{array}{r}
\frac{4}{5} \\
+\ \frac{3}{5} \\
\hline
\end{array}
$$

3.
$$
\begin{array}{r}
5\frac{1}{4} \\
-\ \frac{2}{4} \\
\hline
\end{array}
$$

4.
$$
\begin{array}{r}
6\frac{4}{6} \\
-\ 1\frac{5}{6} \\
\hline
\end{array}
$$

Name _____

Adding and Subtracting with Like Denominators (continued)

Write answers in simplest form.

5. $\begin{array}{r} 2\frac{9}{10} \\ + 1\frac{5}{10} \\ \hline \end{array}$

6. $\begin{array}{r} 5 \\ - 4\frac{2}{4} \\ \hline \end{array}$

7. $\begin{array}{r} \frac{2}{9} \\ - \frac{2}{9} \\ \hline \end{array}$

8. $\begin{array}{r} 4\frac{1}{5} \\ + \frac{3}{5} \\ \hline \end{array}$

9. $2\frac{3}{4} - 1 =$ _____

10. $7\frac{2}{6} + 6\frac{5}{6} =$ _____

11. $3\frac{2}{5} + 1\frac{2}{5} + \frac{3}{5} =$ _____

12. $6\frac{1}{8} - 1\frac{5}{8} =$ _____

13. $7 - 2\frac{3}{7} =$ _____

14. $3\frac{4}{8} + 1\frac{7}{8} + \frac{1}{8} =$ _____

15. Mental Math How many eighths are in $5\frac{3}{8}$? _____

16. Todd filled his lawn mower with $1\frac{3}{8}$ gallons of gas at $1.09 per gallon. He then mowed the lawn. He estimated that there was $\frac{6}{8}$ of a gallon left in the mower. How much gas did the mower use? _____

17. A muffin recipe calls for $2\frac{1}{4}$ cups of flour, a cake recipe calls for $2\frac{3}{4}$ cups of flour, and a cookie recipe calls for $1\frac{3}{4}$ cups of flour. How much flour is needed to make all 3 recipes? _____

Test Prep Choose the correct letter for each answer.

18. Find $4\frac{2}{6} - 1\frac{5}{6}$.

A $3\frac{3}{6}$ **B** $2\frac{1}{2}$ **C** $3\frac{1}{2}$ **D** $5\frac{3}{6}$

19. From Yumna's house to the grocery store is $2\frac{2}{7}$ miles. How far would a round trip be?

F $4\frac{4}{7}$ **G** $2\frac{4}{7}$ **H** $4\frac{2}{7}$ **J** $4\frac{4}{14}$

Mean, Median, Mode, and Range

Example

Find the mean, median, mode, and range of the data:

2, 7, 5, 4, 10, 2, 1, 2 ,10, 7.

To find the *mean,* add the data together, then divide by the number of data.

$2 + 7 + 5 + 4 + 10 + 2 + 1 + 2 + 10 + 7 = 50$
$50 \div 10 = 5$

Five is the mean.

The *median* is the middle number when the data are listed in order.

First list the data in order, then count to find the middle number(s).
1, 2, 2, 2, 4, 5, 7, 7, 10, 10

Since there are 2 middle numbers, the median is halfway between them. 4.5 is between 4 and 5 so the median is 4.5.

The *mode* is the number that occurs most often.

2 occurs three times, so the mode is 2.

The *range* is the biggest number minus the smallest number.

$10 - 1 = 9$, so the range is 9.

Find the mean, median, mode, and range of each data set.

1. 2, 5, 1, 8, 8, 12, 6

mean _____

median _____

mode(s) _____

range _____

2. 32, 36, 36, 32

mean _____

median _____

mode(s) _____

range _____

3. 2, 4, 7, 12, 17, 11, 2, 7, 3, 5

mean _____

median _____

mode(s) _____

range _____

Name_____

Mean, Median, Mode, and Range (continued)

Find the mean, median, mode, and range of each data set.

4. 4, 1, 1, 8, 8, 14   **5.** 35, 23, 15, 23   **6.** 15, 11, 12, 25, 14, 11, 10, 14

mean _____   mean _____   mean _____

median _____   median _____   median _____

mode(s) _____   mode(s) _____   mode(s) _____

range _____   range _____   range _____

Use the table at the right for Exercises 7–10.

7. Find the measures of central tendency for John's scores.

_____

_____

Bowling Scores					
Game	Pedro	John	Pam	Brian	Lisa
1	75	73	85	68	75
2	82	110	80	75	78
3	73	74	75	75	78
4	75	73	80	42	82
5	75	70	75	70	75

8. If John had scored 100 for his second game, what measure of central tendency would have changed? _____

9. Which measure of central tendency best describes Brian's usual score? _____

10. Math Reasoning What needs to change to increase the number of modes in Pam's scores? _____

Test Prep Choose the correct letter for each answer.

11. The heights of five plants are: 9 cm, 6 cm, 5 cm, 9 cm, and 8 cm. What is the mean height in centimeters of these plants?

A 5 cm   **B** 7.4 cm   **C** 8 cm   **D** 9 cm

12.

Touchdowns Made in Football Games (1999-2000 Season)						
3	6	2	4	3	5	1

What is the median number of touchdowns made?

F 4 touchdowns   **H** 2 touchdowns

G 3 touchdowns   **J** 1 touchdown

Name_____

Subtracting Whole Numbers and Decimals

Example

Find: $45 − $12.31.

When subtracting decimals, remember to align the decimal points.
You may need to use zeros as placeholders.

Step 1 Line up the decimal points and use zeros as placeholders.

Step 2 Subtract the hundredths. Regroup if necessary.

Step 3 Subtract the tenths. Regroup if necessary.

Step 4 Subtract the ones, then the tens. Regroup if necessary. Place the decimal point in the difference.

```
                    9                    9                    9
                 4 10 10              4 10 10              4 10 10
  45.00           4̶5̶.0̶0̶               4̶5̶.0̶0̶               4̶5̶.0̶0̶
− 12.31         − 12.31              − 12.31              − 12.31
                      9                   69                32.69
```

So, $45 − $12.31 = $32.69.

---

1. 500	**2.** $460.00	**3.** 8,705	**4.** $78.24
− 267	− 159.16	− 3,914	− 15.98

5. 17 − 4.25   **6.** 350 − 92.1   **7.** 12.9 − 7   **8.** 9,000 − 4,500

_____   _____   _____   _____

Choose a method. Use mental math, paper and pencil, or a calculator to find the difference. Tell which method you used.

9. $655.95	**10.** 8,000	**11.** 2,139.81	**12.** 0.7549
− 425.75	− 4,390	− 457.95	− 0.3418

13. 8 − 5.6   **14.** 760.1 − 89   **15.** 9.004 − 8.17   **16.** $15 − $13.78

_____   _____   _____   _____

Name_____

Subtracting Whole Numbers and Decimals (continued)

17. $48.43
        − 27.62

18.   5.300
        − 2.148

19.   384.1
        − 295.7

20.   15,900
        − 7,896

21. 65 − 2.98

22. 9,000 − 0.12

23. 7.001 − 4

24. $56.54 − $54.56

_____   _____   _____   _____

Choose a method. Use mental math, paper and pencil, or a calculator
to find the difference. Tell which method you used.

25.   5,000
        − 3,985

26.   71.28
        − 15.90

27.   0.9987
        − 0.2196

28.   6.175
        − 0.807

29. 18 − 2.76

30. 4.105 − 2.3

31. 198.5 − 0.21

32. 600 − 48.2

_____   _____   _____   _____

33. Alicia is 1.6 meters tall and Joey is 1.46 meters tall.
How much taller is Alicia than Joey?   _____

34. Colt had $40 when he went to the store to buy a new CD.
He bought a CD that cost $16.45. He gave the cashier
a $20 bill. How much change did he receive?   _____

Test Prep Choose the correct letter for each answer.

35. Find 46 − 5.79.

   A 533   **B** 11.9   **C** 40.79   **D** 40.21   **E** NH

36. Miguel spent $17.50 on a new shirt and $30 on a new pair of
pants. How much more did the pants cost than the shirt?

   F $12.50   **G** $22.50   **H** $32.50   **J** $47.50   **K** NH

Adding Whole Numbers and Decimals

Example

Add: 2,745.2 + 319 + 24.37.

When adding whole numbers, arrange them so that place values are properly aligned.

$$
\begin{array}{r}
2{,}745.20 \\
319.00 \\
+\quad 24.37 \\
\hline
3{,}088.57
\end{array}
$$

Zeros are written as placeholders.

When adding decimals, align the decimal points.

Estimate to check your answer, by rounding to the largest digit.
3,000 + 300 + 20 = 3,320.

Since 3,088.57 is close to 3,320, the answer is reasonable.

Estimate first. Then find the exact sum.

1. $674.28
    + 215.84

2. 8,940
    + 7,561

3. 12.094
    6.123
    + 4.570

4. 2.014
    0.025
    + 1.307

5. 1,208 + 35 + 6.5

6. 2.601 + 10.012 + 0.56 + 4

Use mental math, paper and pencil, or a calculator to find the sum.

7. 2.375
    9.300
    + 6.825

8. 315.10
    423.59
    + 132.01

9. 4.8071
    2.0035
    + 3.2204

10. 24,541.21
    9,056.39
    + 6,513.50

Name _____

Adding Whole Numbers and Decimals (continued)

Estimate first. Then find the exact sum.

11. $478.05
     + 219.36

12. 1,954.2
     + 497.5

13. 163.21
     25.34
     + 6.19

14. $118.09
     42.65
     + 3.94

15. 12 + 8.9 + 6.05

16. 41.9 + 0.21 + 5.701 + 3.8

_____

_____

Use mental math, paper and pencil, or a calculator to find the sum.

17.   878.15
     12.85
     +   6.01

18.   3.095
     2.105
     + 1.120

19.   7.0042
     3.1095
     + 2.8112

20. $15,971.80
     219.20
     +   10.50

21. Jonna went to a book store and bought 3 books. One cost $4.59, another cost $6.98, and the third cost $5.10. How much did she spend?

_____

22. Mary bought 5 pounds of potatoes, 1.75 pounds of onions, and 2.05 pounds of carrots. How many pounds of vegetables did she buy?

_____

Test Prep Choose the correct letter for each answer.

23. Find the exact sum: 16 + 2.51 + 8.025.

   A 8.292   **B** 98.76   **C** 26.535   **D** 8.436   **E** NH

24. Julia bought presents for three friends, costing $12.98, $15.00 and $14.75. How much did she spend?

   F $42.73   **G** $27.88   **H** $52.73   **J** $37.88   **K** NH

Adding Mixed Numbers

Example

Find $1\frac{3}{6} + 3\frac{5}{8}$.

Step 1 Find LCD.   **Step 2** Write equivalent fractions using the LCD.

$$1\frac{3}{6} = 1\frac{}{24}$$
$$+\ 3\frac{5}{8} = 3\frac{}{24}$$

$$1\frac{3}{6} = 1\frac{12}{24}$$
$$+\ 3\frac{5}{8} = 3\frac{15}{24}$$

Step 3 Add. Simplify if possible.   Estimate to check.
$$2 + 4 = 6$$

$$1\frac{12}{24}$$
$$+\ 3\frac{15}{24}$$
$$4\frac{27}{24} = 5\frac{3}{24} = 5\frac{1}{8}$$

Add. Simplify, if possible. Estimate to check.

1. $\quad 2\frac{1}{2}$
$\quad +\ 1\frac{1}{3}$

_____

2. $\quad 1\ \frac{1}{5}$
$\quad +\ 3\frac{3}{10}$

_____

3. $\quad 1\frac{3}{4}$
$\quad +\ \frac{2}{5}$

_____

4. $\quad 2\frac{5}{12}$
$\quad +\ 3\ \frac{5}{6}$

_____

5. $\quad 6\frac{5}{6}$
$\quad +\ 5\frac{3}{8}$

_____

6. $\quad 6\frac{1}{9}$
$\quad +\ 3\frac{2}{3}$

_____

7. $\quad 4\frac{3}{4}$
$\quad +\ 7\frac{5}{6}$

_____

8. $\quad 6\frac{1}{16}$
$\quad +\ 4\ \frac{3}{8}$

_____

Name_____

Adding Mixed Numbers (continued)

Add. Simplify, if possible. Estimate to check.

9. $2\frac{1}{5}$

$+\ 1\frac{7}{10}$
___

10. $4\frac{3}{8}$

$+\ \ \frac{3}{4}$
___

11. $2\frac{5}{6}$

$+\ 2\frac{4}{9}$
___

12. $4\frac{4}{5}$

$+\ \ \frac{1}{2}$
___

_____   _____   _____   _____

13. $2\frac{3}{4} + 7\frac{1}{5} =$

14. $1\frac{2}{7} + 6\frac{1}{6} =$

15. $3\frac{1}{4} + 4\frac{3}{5} =$

_____   _____   _____

16. $6\frac{7}{8} + 1\frac{5}{6} =$

17. $7\frac{1}{2} + 2\frac{3}{7} =$

18. $3\frac{1}{10} + 1\frac{5}{8} =$

_____   _____   _____

19. Rhonda needs 4 gallons of green paint to decorate her room. If she mixes $2\frac{1}{3}$ gallons of blue paint with $1\frac{1}{2}$ gallons of yellow paint, will she have enough? Explain.

_____

20. Ramona bought $1\frac{2}{3}$ pounds of strawberries, $2\frac{1}{4}$ pounds of apples and $2\frac{1}{2}$ pounds of oranges at the store. What was the total weight of Ramona's purchase?

_____

Test Prep Choose the correct letter for each answer.

21. Find $1\frac{2}{5} + 5\frac{1}{6}$.

A $6\frac{3}{11}$ **B** $5\frac{17}{30}$ **C** $6\frac{17}{30}$ **D** $6\frac{3}{30}$

22. It takes $2\frac{3}{4}$ hours to get to Cal City and $3\frac{5}{8}$ hours to get from Cal City to San Angelo. How long will it take to go to Cal City, then San Angelo?

F $5\frac{3}{8}$ hours   **G** 6 hours   **H** 7 hours   **J** $6\frac{3}{8}$ hours

Subtracting Fractions: Unlike Denominators

Example

Find $\dfrac{4}{5} - \dfrac{2}{3}$.

Step 1 Rewrite the fractions using a common denominator.

$$\xrightarrow{\times 3}$$
$$\dfrac{4}{5} = \dfrac{12}{15}$$
$$\xrightarrow{\times 3}$$

$$\xrightarrow{\times 5}$$
$$\dfrac{2}{3} = \dfrac{10}{15}$$
$$\xrightarrow{\times 5}$$

Step 2 Subtract the new fractions.

$$\dfrac{4}{5} = \dfrac{12}{15}$$
$$-\dfrac{2}{3} = \dfrac{10}{15}$$
$$\overline{\dfrac{2}{15}}$$

$\dfrac{2}{15}$ is in simplest form.

Write answers in simplest form.

1. $\dfrac{2}{3} - \dfrac{1}{6} =$ _____

2. $\dfrac{4}{5} - \dfrac{3}{10} =$ _____

3. $\dfrac{3}{4} - \dfrac{1}{2} =$ _____

4. $\dfrac{5}{6} - \dfrac{1}{2} =$ _____

5. $\dfrac{5}{8} - \dfrac{1}{4} =$ _____

6. $\dfrac{3}{5} - \dfrac{1}{2} =$ _____

7. $\dfrac{1}{2} - \dfrac{2}{7} =$ _____

8. $\dfrac{7}{9} - \dfrac{1}{2} =$ _____

9. $\dfrac{9}{12} - \dfrac{1}{3} =$ _____

10. $\dfrac{3}{4} - \dfrac{1}{6} =$ _____

11. $\dfrac{2}{3} - \dfrac{2}{7} =$ _____

12. $\dfrac{2}{5} - \dfrac{1}{9} =$ _____

Name_____

Subtracting Fractions: Unlike Denominators (continued)

Write answers in simplest form.

13. $\dfrac{3}{4} - \dfrac{1}{8} =$ _____

14. $\dfrac{5}{6} - \dfrac{1}{5} =$ _____

15. $\dfrac{4}{5} - \dfrac{1}{2} =$ _____

16. $\dfrac{1}{2} - \dfrac{1}{8} =$ _____

17. $\dfrac{4}{7} - \dfrac{3}{8} =$ _____

18. $\dfrac{7}{10} - \dfrac{1}{4} =$ _____

19. $\begin{array}{r} \frac{7}{10} \\ -\ \frac{1}{6} \\ \hline \end{array}$

20. $\begin{array}{r} \frac{3}{4} \\ -\ \frac{2}{6} \\ \hline \end{array}$

21. $\begin{array}{r} \frac{8}{9} \\ -\ \frac{1}{6} \\ \hline \end{array}$

22. $\begin{array}{r} \frac{14}{15} \\ -\ \frac{3}{5} \\ \hline \end{array}$

23. Math Reasoning What would the common
denominator be for the fractions $\dfrac{1}{16} - \dfrac{1}{80}$?   _____

24. Will took a nap for $\dfrac{7}{8}$ hour and Catherine
took a nap for $\dfrac{5}{6}$ hour. Who took a longer
nap? How much longer was the nap?   _____

25. Four-tenths of the school plays a sport. $\dfrac{1}{5}$ of the
school plays basketball. What fraction of the school
plays sports but not basketball?   _____

Test Prep Choose the correct letter for the answer.

26. Find $\dfrac{5}{7} - \dfrac{1}{8}$.

  A $\dfrac{4}{56}$ **B** $\dfrac{1}{14}$ **C** $\dfrac{33}{56}$ **D** $\dfrac{4}{15}$

Adding Fractions: Unlike Denominators

Example

Find $\frac{1}{6} + \frac{2}{4}$.

Step 1 Rewrite the fractions using a common denominator.

$$\overset{\times 2}{\underset{\times 2}{\frac{1}{6} = \frac{2}{12}}}$$

$$\overset{\times 3}{\underset{\times 3}{\frac{2}{4} = \frac{6}{12}}}$$

Step 2 Add the new fractions.

$$\begin{array}{r} \frac{1}{6} = \frac{2}{12} \\ + \frac{2}{4} = \frac{6}{12} \\ \hline \frac{8}{12} \end{array}$$

Step 3 Rewrite in simplest form. $= \frac{2}{3}$

Write answers in simplest form.

1. $\frac{1}{3} + \frac{1}{9} =$ _____

2. $\frac{1}{10} + \frac{3}{5} =$ _____

3. $\frac{7}{8} + \frac{3}{4} =$ _____

4. $\frac{5}{12} + \frac{5}{6} =$ _____

5. $\frac{2}{3} + \frac{1}{6} =$ _____

6. $\frac{3}{10} + \frac{1}{5} =$ _____

7. $\frac{3}{14} + \frac{6}{7} =$ _____

8. $\frac{1}{2} + \frac{3}{5} =$ _____

9. $\frac{1}{4} + \frac{5}{12} =$ _____

10. $\frac{7}{8} + \frac{1}{4} =$ _____

11. $\frac{3}{7} + \frac{5}{6} =$ _____

12. $\frac{2}{3} + \frac{5}{9} =$ _____

13. $\frac{1}{5} + \frac{3}{4} =$ _____

14. $\frac{5}{6} + \frac{3}{4} =$ _____

15. $\frac{1}{2} + \frac{1}{3} =$ _____

Adding Fractions: Unlike Denominators (continued)

Write answers in simplest form.

16. $\dfrac{3}{4} + \dfrac{1}{8} =$ _____   **17.** $\dfrac{5}{6} + \dfrac{1}{4} =$ _____   **18.** $\dfrac{4}{5} + \dfrac{7}{10} =$ _____

19. $\dfrac{1}{2} + \dfrac{5}{8} =$ _____   **20.** $\dfrac{5}{7} + \dfrac{3}{14} =$ _____   **21.** $\dfrac{1}{4} + \dfrac{3}{5} =$ _____

22. $\begin{array}{r} \frac{1}{5} \\ + \frac{5}{10} \\ \hline \end{array}$ **23.** $\begin{array}{r} \frac{1}{6} \\ + \frac{1}{7} \\ \hline \end{array}$ **24.** $\begin{array}{r} \frac{5}{9} \\ + \frac{1}{3} \\ \hline \end{array}$ **25.** $\begin{array}{r} \frac{3}{4} \\ + \frac{2}{5} \\ \hline \end{array}$

26. Algebra If $n - \dfrac{11}{12} = \dfrac{1}{4}$, then $n = \underline{\quad ? \quad}$.   _____

27. Students are voting on a class project. Half of the class voted for project A, $\dfrac{1}{5}$ of the class for project B, and $\dfrac{3}{10}$ voted for project C. What fraction voted for projects A and C?   _____

Test Prep Choose the correct letter for each answer.

28. Find $\dfrac{3}{4} + \dfrac{5}{12}$.

   A $\dfrac{1}{2}$ **B** $\dfrac{8}{16}$ **C** $1\dfrac{1}{6}$ **D** $\dfrac{2}{3}$

29. Rob is baking a cake. It calls for $\dfrac{2}{3}$ cup of butter in the batter. It also calls for $\dfrac{1}{4}$ cup of butter in the frosting. How much butter is needed for the cake?

   F $\dfrac{3}{7}$ **G** $\dfrac{11}{12}$ **H** $\dfrac{1}{4}$ **J** $\dfrac{3}{4}$

Estimating Sums and Differences of Mixed Numbers

Example

Estimate $4\frac{1}{3} - 1\frac{2}{3}$.

You can estimate sums and differences of mixed numbers by rounding each number to the nearest whole number. If the fraction is greater than or equal to $\frac{1}{2}$, round up to the next whole number. Otherwise, round down.

$$4\frac{1}{3} \longrightarrow 4 \qquad \frac{1}{3} < \frac{1}{2} \text{ so round to 4}$$

$$-1\frac{2}{3} \longrightarrow \frac{-2}{2} \qquad \frac{2}{3} > \frac{1}{2} \text{ so round to 2}$$

The answer is about 2.

Estimate each sum or difference.

1. $\quad 2\frac{2}{3}$

$\quad -1\frac{1}{3}$

_____

2. $\quad \frac{4}{5}$

$\quad +\frac{3}{5}$

_____

3. $\quad 5\frac{1}{4}$

$\quad -\frac{2}{4}$

_____

4. $\quad 6\frac{4}{6}$

$\quad +1\frac{5}{6}$

_____

5. $\quad 6\frac{7}{8}$

$\quad -5\frac{3}{8}$

_____

6. $\quad 6$

$\quad -3\frac{3}{9}$

_____

7. $\quad 4\frac{9}{14}$

$\quad +2\frac{11}{14}$

_____

8. $\quad 6$

$\quad +4\frac{2}{16}$

_____

9. $\quad 2\frac{9}{10}$

$\quad -1\frac{5}{10}$

_____

10. $\quad 5$

$\quad +4\frac{2}{4}$

_____

11. $\quad 2\frac{2}{9}$

$\quad +3\frac{2}{9}$

_____

12. $\quad 4\frac{1}{5}$

$\quad -\frac{3}{5}$

_____

Estimating Sums and Differences of Mixed Numbers (continued)

Estimate each sum or difference.

13. $\quad 2\frac{9}{10}$
$\quad + 1\frac{1}{10}$

_____

14. $\quad 5\frac{1}{4}$
$\quad + 4\frac{2}{4}$

_____

15. $\quad 3\frac{2}{9}$
$\quad - \ \frac{2}{9}$

_____

16. $\quad 4\frac{4}{5}$
$\quad + \ \frac{3}{5}$

_____

17. $2\frac{3}{4} - 1 =$ _____

_____

18. $7\frac{2}{6} + 6\frac{5}{6} =$ _____

_____

19. $3\frac{2}{5} + 1\frac{2}{5} =$ _____

_____

20. $6\frac{1}{8} - 1\frac{5}{8} =$ _____

_____

21. $7 - 2\frac{3}{7} =$ _____

_____

22. $3\frac{4}{8} + 1\frac{7}{8} =$ _____

_____

23. Algebra Estimate the solution: $n + 1\frac{1}{8} = 7\frac{5}{8}$ _____

24. Yolanda walked $2\frac{3}{5}$ miles on Monday, $1\frac{1}{5}$ miles on Tuesday, and $3\frac{4}{5}$ miles on Wednesday. Estimate how far she walked on all three days.

_____

25. Chris is going to add $2\frac{1}{4}$ cups of a chemical to the swimming pool when he finds out that Richard has already added $1\frac{1}{8}$ cups of the chemical. Estimate how much more Chris should add so that the total is his original amount.

_____

Test Prep Choose the correct letter for the answer.

26. Estimate $4\frac{2}{6} - 1\frac{5}{6}$.

    A 4   **B** 3   **C** 2   **D** 1

Subtracting Fractions and Mixed Numbers: Like Denominators

Example

Find $4\frac{1}{3} - 1\frac{2}{3}$.

Step 1 $\frac{1}{3} < \frac{2}{3}$, so before you subtract, rename $4\frac{1}{3}$ to show more thirds.

$$4\frac{1}{3} = \quad 3\frac{4}{3}$$
$$- 1\frac{2}{3}$$
$$\overline{}$$

Step 2 Subtract the fractions. Then subtract the whole numbers.

$$3\frac{4}{3}$$
$$- 1\frac{2}{3}$$
$$\overline{2\frac{2}{3}}$$

Step 3 Check to see if you can write the fraction in simplest form.

$2\frac{2}{3}$ is in simplest form.

Write answers in simplest form.

1. $2\frac{2}{3}$
$- 1\frac{1}{3}$
$\overline{}$

2. $\frac{4}{5}$
$- \frac{3}{5}$
$\overline{}$

3. $5\frac{1}{4}$
$- \frac{2}{4}$
$\overline{}$

4. $6\frac{4}{6}$
$- 1\frac{5}{6}$
$\overline{}$

5. $6\frac{7}{8}$
$- 5\frac{3}{8}$
$\overline{}$

6. 6
$- 3\frac{3}{9}$
$\overline{}$

7. $4\frac{9}{14}$
$- 2\frac{11}{14}$
$\overline{}$

8. 6
$- 4\frac{2}{16}$
$\overline{}$

Name _____

Subtracting Fractions and Mixed Numbers: Like Denominators (continued)

Write answers in simplest form.

9. $\begin{array}{r} 2\frac{9}{10} \\ -\ 1\frac{5}{10} \\ \hline \end{array}$

10. $\begin{array}{r} 5 \\ -\ 4\frac{2}{4} \\ \hline \end{array}$

11. $\begin{array}{r} \frac{2}{9} \\ -\ \frac{2}{9} \\ \hline \end{array}$

12. $\begin{array}{r} 4\frac{1}{5} \\ -\ \frac{3}{5} \\ \hline \end{array}$

13. $2\frac{3}{4} - 1 =$ _____

14. $7\frac{2}{6} - 6\frac{5}{6} =$ _____

15. $3\frac{2}{5} - 1\frac{2}{5} =$ _____

16. $6\frac{1}{8} - 1\frac{5}{8} =$ _____

17. $7 - 2\frac{3}{7} =$ _____

18. $3\frac{4}{8} - 1\frac{7}{8} =$ _____

19. Write $2\frac{3}{8}$ to show 8 more eighths. _____

20. Write $7\frac{8}{9}$ to show 9 more ninths. _____

21. Mental Math If you have $7\frac{1}{4}$ and you subtract $\frac{1}{4}$, how much do you have? _____

22. Bernie kicked the ball $8\frac{7}{8}$ yards and Kristen kicked the ball $9\frac{5}{8}$ yards. Who kicked the ball farther? How much farther? _____

Test Prep Choose the correct letter for the answer.

23. Find $4\frac{2}{6} - 1\frac{5}{6}$.

A $3\frac{3}{6}$ 　　　 **B** $2\frac{1}{2}$ 　　　 **C** $3\frac{1}{2}$ 　　　 **D** $5\frac{3}{6}$

Name _____

Adding Fractions and Mixed Numbers: Like Denominators

Example

Find $1\frac{3}{6} + 3\frac{4}{6}$.

Step 1 Add the fractions.

$$\begin{array}{r} 1\frac{3}{6} \\ + \ 3\frac{4}{6} \\ \hline \frac{7}{6} \end{array}$$

Step 2 Add the whole numbers.

$$\begin{array}{r} 1\frac{3}{6} \\ + \ 3\frac{4}{6} \\ \hline 4\frac{7}{6} \end{array}$$

Step 3 Check to see if you can write the fraction in simplest form.

$4\frac{7}{6} = 4 + 1\frac{1}{6} = 5\frac{1}{6}$

Write answers in simplest form.

1. $\quad 2\frac{1}{3}$
$\quad + \ 1\frac{1}{3}$
_____

2. $\quad 1\frac{1}{5}$
$\quad + \ 3\frac{3}{5}$
_____

3. $\quad \frac{3}{4}$
$\quad + \ \frac{2}{4}$
_____

4. $\quad \frac{4}{6}$
$\quad + \ \frac{5}{6}$
_____

5. $\quad 6\frac{5}{8}$
$\quad + \ 5\frac{3}{8}$
_____

6. $\quad 6\frac{1}{9}$
$\quad + \ 3\frac{3}{9}$
_____

7. $\quad 4\frac{3}{14}$
$\quad + \ 7\frac{12}{14}$
_____

8. $\quad 6\frac{4}{16}$
$\quad + \ 4\frac{2}{16}$
_____

9. $\quad 6\frac{2}{12}$
$\quad + \ 1\frac{10}{12}$
_____

10. $\quad 1\frac{8}{10}$
$\quad + \ 3\frac{6}{10}$
_____

11. $\quad 7\frac{4}{5}$
$\quad + \ 7\frac{3}{5}$
_____

12. $\quad 7\frac{4}{6}$
$\quad + \ 2\frac{4}{6}$
_____

Name _____

Adding Fractions and Mixed Numbers: Like Denominators (continued)

Write answers in simplest form.

13. $2\frac{1}{10}$

$+ 1\frac{5}{10}$

14. $\frac{3}{4}$

$+ \frac{3}{4}$

15. $2\frac{5}{9}$

$+ 2\frac{4}{9}$

16. $4\frac{4}{5}$

$+ \frac{3}{5}$

17. $2\frac{3}{4} + 7 = $ _____

18. $1\frac{2}{6} + 6\frac{1}{6} = $ _____

19. $3\frac{2}{5} + 4\frac{3}{5} = $ _____

20. $6\frac{7}{8} + 1\frac{5}{8} = $ _____

21. $7 + 2\frac{3}{7} = $ _____

22. $3\frac{4}{8} + 1\frac{5}{8} = $ _____

23. Mental Math If you have $3\frac{3}{4}$ and you add $\frac{1}{4}$, how much do you have?

_____

24. Mrs. Anderson's class spent $2\frac{4}{5}$ hours on Math, $1\frac{2}{5}$ hours on English, and 1 hour on Science. How long did they spend on Math and English?

_____

25. Alex has a string that is $2\frac{5}{16}$ inches long and Matt has a string that is $5\frac{11}{16}$ inches long. How much string do they have together?

_____

Test Prep Choose the correct letter for each answer.

26. Find $1\frac{2}{6} + 5\frac{1}{6}$.

A $6\frac{3}{12}$ **B** $5\frac{1}{2}$ **C** $6\frac{1}{3}$ **D** $6\frac{1}{2}$

27. It takes $2\frac{3}{8}$ hours to get to Woodward and $3\frac{5}{8}$ hours to get from Woodward to Boise City. How long will it take to go to Woodward, then Boise City?

F $5\frac{7}{8}$ hours   **G** $\frac{8}{8}$ hours   **H** 7 hours   **J** 6 hours

Equivalent Fractions

Example

Find a fraction equivalent to $\frac{1}{6}$ with a denominator of 30.

$$\frac{1}{6} = \frac{?}{30} \qquad \frac{1}{6} = \frac{1 \times 5}{6 \times 5} = \frac{5}{30}$$

So, $\frac{1}{6} = \frac{5}{30}$.

Find each equivalent fraction.

1. $\frac{2}{3} = \frac{}{18}$

2. $\frac{3}{4} = \frac{}{20}$

3. $\frac{5}{8} = \frac{}{56}$

4. $\frac{1}{4} = \frac{5}{}$

5. $\frac{10}{35} = \frac{}{7}$

6. $\frac{30}{48} = \frac{}{8}$

7. $\frac{5}{9} = \frac{25}{}$

8. $\frac{14}{49} = \frac{2}{}$

9. $\frac{12}{13} = \frac{}{26}$

10. $\frac{9}{27} = \frac{3}{}$

11. $\frac{12}{48} = \frac{1}{}$

12. $\frac{6}{7} = \frac{48}{}$

13. $\frac{7}{13} = \frac{}{39}$

14. $\frac{2}{24} = \frac{}{12}$

15. $\frac{54}{81} = \frac{6}{}$

Name_____

Equivalent Fractions (continued)

Find each equivalent fraction.

16. $\dfrac{2}{3} = \dfrac{}{15}$

17. $\dfrac{3}{4} = \dfrac{}{24}$

18. $\dfrac{5}{8} = \dfrac{}{64}$

19. $\dfrac{1}{4} = \dfrac{7}{}$

20. $\dfrac{12}{42} = \dfrac{}{7}$

21. $\dfrac{35}{40} = \dfrac{}{8}$

22. $\dfrac{5}{9} = \dfrac{45}{}$

23. $\dfrac{16}{48} = \dfrac{2}{}$

24. $\dfrac{11}{13} = \dfrac{}{26}$

25. Math Reasoning Use a number line to show that $\dfrac{1}{3}$ is equal to $\dfrac{2}{6}$.

26. On Saturday, Yolanda spent $\dfrac{2}{3}$ of her day playing. How many ninths of her day was spent playing?

_____

27. Tom needs $\dfrac{3}{6}$ cup of paint for his model airplane. The store sells paint in $\dfrac{1}{2}$ cup containers. Will one container provide enough paint?

_____

Test Prep Choose the correct letter for the answer.

28. Which fraction is equivalent to $\dfrac{1}{5}$?

A $\dfrac{5}{20}$ **B** $\dfrac{5}{25}$ **C** $\dfrac{5}{10}$ **D** $\dfrac{5}{30}$

Relating Fractions and Decimals

Example

Write a fraction and a decimal for the shaded parts of the set.

☆ ☆ ☆ ☆ ☆

$\frac{2}{5}$ of the shapes are shaded.

$\frac{2}{5} = 2 \div 5 = 0.4$ $5\overline{)2.0}^{\,0.4}$

Write a fraction and a decimal for each shaded part.

1.

_____

2.

△ △ △ △ △
△ △ △ △ △

_____

3.

_____

4.

_____

5.

_____

6.

△ △ △ △
△ △ △ △

_____
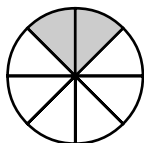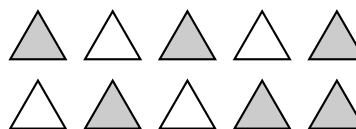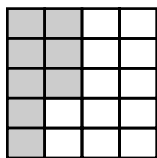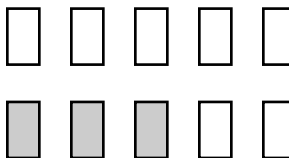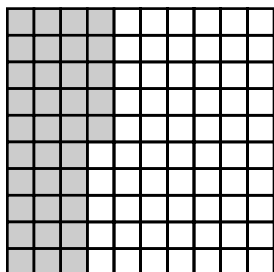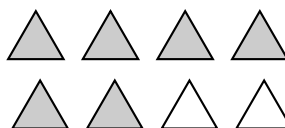
Relating Fractions and Decimals (continued)

Write a fraction and a decimal for each shaded part.

7.

8.

_____

_____

9.

10.

_____

_____
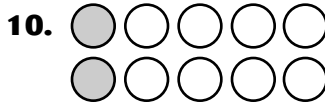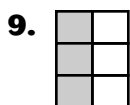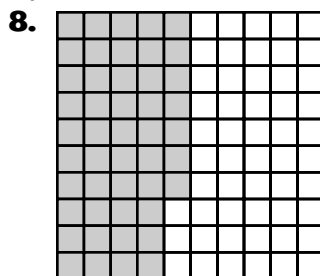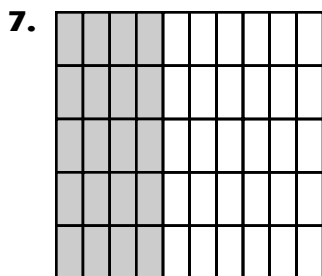
Use the number line to write a fraction and a decimal for each point.

X Y Z

0   1
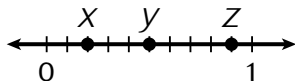
11. Point X **12.** Point Y **13.** Point Z

_____   _____   _____

14. Math Reasoning Write $\frac{1}{4}$ as a decimal. What is $\frac{1}{4}$ of a dollar?
How are these two numbers related?

_____

15. Mary has 6 stuffed animals. Three of them are bears and 2 of
them are rabbits. Write a fraction and a decimal to represent
the bears.   _____

Test Prep Choose the correct letter for the answer.

16. Find the decimal that is the same as $\frac{12}{50}$.

   A 0.12   **B** 0.06   **C** 0.24   **D** 0.50

Dividing Greater Numbers

Example

Find 8,765 ÷ 37.

Estimate: 8,000 ÷ 40 = 200.

Step 1 Divide the hundreds.

	2
Divide	37)8,765
Multiply	−74
Subtract	13
	Compare: 13 < 37.

Step 2 Divide the tens.

	23
Bring down	37)8,765
Divide	−74
Multiply	136
Subtract	−111
	25
	Compare: 25 < 37.

Step 3 Divide the ones.

	236
Bring down	37)8,765
Divide	−74
Multiply	136
Subtract	−111
	255
	−222
	33
	Compare: 33 < 37.

So, the answer is 236 R33.

---

1. 6,257 ÷ 22 =

_____

2. 5,731 ÷ 32 =

_____

3. 8,024 ÷ 43 =

_____

4. 9,565 ÷ 89 =

_____

5. 14,804 ÷ 74 =

_____

6. 6,237 ÷ 58 =

_____

7. 59,461 ÷ 27 =

_____

8. 78,081 ÷ 21 =

_____

9. 4,219 ÷ 33 =

_____

10. 5,664 ÷ 63 =

_____

11. 22,718 ÷ 34 =

_____

12. 5,718 ÷ 57 =

_____

Name_____

Dividing Greater Numbers (continued)

13. $9{,}093 \div 35 =$

_____

14. $2{,}213 \div 19 =$

_____

15. $4{,}558 \div 31 =$

_____

16. $37{,}378 \div 75 =$

_____

17. $3{,}712 \div 37 =$

_____

18. $4{,}650 \div 42 =$

_____

19. $6{,}035 \div 19 =$

_____

20. $28{,}711 \div 67 =$

_____

21. $6{,}590 \div 18 =$

_____

22. $32\overline{)9{,}602}$

23. $94\overline{)81{,}960}$

24. $25\overline{)5{,}345}$

25. Math Reasoning Jodie says that $2{,}162 \div 12$ equals 180. Is she correct? Why or why not?

_____

26. A book distributor orders 5,175 books on anthropology that it will distribute to 23 bookstores. The book is listed at $26. How many books will each store receive?   _____

Test Prep Choose the correct letter for each answer.

27. Find $5{,}264 \div 18$.

A 292   **B** 292 R8   **C** 291 R26   **D** 289 R44

28. The math club sold popcorn for $12 each as a fundraiser. A total of 1,368 containers were sold. Each carton contains 24 containers. How many cartons were sold?

F 114   **G** 57   **H** 12   **J** 2

Two-Digit Quotients

Example

Find 765 ÷ 37.

Estimate first: 800 ÷ 40 = 20.

Step 1 Divide the tens.

```
              2
Divide     37)765
Multiply    −74
Subtract      2
```

Compare: 2 < 37.

Step 2 Divide by the ones.

```
                    20
Bring down     37)765
Divide          −74
Multiply          25
Subtract         −00
                  25
```

Compare: 25 < 37.

Step 3 Check.

```
               37
             × 20
              740
Add remainder + 25
              765
```

---

1. 657 ÷ 22 =

_____

2. 531 ÷ 32 =

_____

3. 824 ÷ 43 =

_____

4. 965 ÷ 89 =

_____

5. 804 ÷ 74 =

_____

6. 637 ÷ 58 =

_____

7. 561 ÷ 27 =

_____

8. 781 ÷ 21 =

_____

9. 419 ÷ 33 =

_____

10. 664 ÷ 63 =

_____

11. 718 ÷ 34 =

_____

12. 718 ÷ 57 =

_____

Two-Digit Quotients (continued)

13. 993 ÷ 35 =

_____

14. 213 ÷ 19 =

_____

15. 558 ÷ 31 =

_____

16. 877 ÷ 72 =

_____

17. 372 ÷ 37 =

_____

18. 450 ÷ 42 =

_____

19. 635 ÷ 19 =

_____

20. 711 ÷ 67 =

_____

21. 590 ÷ 18 =

_____

22. 32)‾6‾0‾2‾

23. 94)‾9‾6‾0‾

24. 25)‾5‾4‾5‾

25. Math Reasoning Is 25 R32 a reasonable answer for
the problem 607 ÷ 23? Why or why not?

_____

26. The local museum's records indicate that 874 people
participated in the guided tours in June . There were
38 guided tours in the month of June and each tour had
the same number of people. How many people were
on each tour?   _____

Test Prep Choose the correct letter for each answer.

27. Find 564 ÷ 18.

   A 30 R24   **B** 29 R42   **C** 31 R6   **D** 31

28. A basketball team scores 736 points in 16 games. The leading
scorer scored 243 of those points. How many points, on average,
did the team score per game?

   F 15   **G** 31   **H** 46   **J** 61

Dividing by Two-Digit Divisors

Example

Find $415 \div 67$.

Estimate: $420 \div 70 = 6$.

Divide $\qquad$ $67\overline{)415}$
$\qquad\qquad\quad 6$

Divide
Multiply $\qquad -402$
Subtract $\qquad\qquad 13$ $\qquad$ Compare: $13 < 67$.

Check: $\qquad 67$
$\qquad\qquad\times\ \ 6$
$\qquad\qquad 402$
$\qquad\qquad +\ 13$
$\qquad\qquad 415$

1. $657 \div 82 =$ _____ **2.** $131 \div 32 =$ _____ **3.** $824 \div 93 =$ _____

4. $465 \div 89 =$ _____ **5.** $204 \div 74 =$ _____ **6.** $637 \div 78 =$ _____

7. $561 \div 77 =$ _____ **8.** $181 \div 61 =$ _____ **9.** $419 \div 73 =$ _____

10. $564 \div 63 =$ _____ **11.** $718 \div 82 =$ _____ **12.** $318 \div 57 =$ _____

13. $415 \div 47 =$ _____ **14.** $259 \div 38 =$ _____ **15.** $107 \div 27 =$ _____

Name_____

Dividing by Two-Digit Divisors (continued)

16. $277 \div 72 =$ _____ **17.** $312 \div 37 =$ _____ **18.** $150 \div 42 =$ _____

19. $135 \div 19 =$ _____ **20.** $711 \div 77 =$ _____ **21.** $590 \div 78 =$ _____

22. $32\overline{)202}$ **23.** $94\overline{)260}$ **24.** $45\overline{)345}$

25. $62\overline{)137}$ **26.** $28\overline{)212}$ **27.** $58\overline{)552}$

28. **Math Reasoning** What number would you multiply
18 by to equal 126? _____

29. A vegetable stand sells 192 cucumbers and 224 yellow squash
during the month of July. About how many cucumbers did they sell
each day?

_____

Test Prep Choose the correct letter for each answer.

30. Find $290 \div 67$.

   A 4 R2   **B** 4 R22   **C** 4 R38   **D** 4

31. A carpenter is cutting a board that is 144 inches long. He needs
each new piece to be 32 inches long. How many pieces will he get
and how much will be left over?

   F 4 pieces, 16 inches left   **H** 4 pieces, 26 inches left

   G 3 pieces, 16 inches left   **J** 4 pieces, 24 inches left

Reading and Making Line Graphs

Example

Use the line graph at the right:

In what month does Houston have an average rainfall of 4 inches?

June

What is the average rainfall in Houston in September?

5 inches

Between what 2 months does the average rainfall increase the most?

August and September

Average Rain Fall per Month in Houston, Texas

Average Rainfall (inches)

Month

Use the line graph at the right for Exercises 1–5.

Polar Bears Hockey Team

Wins per Month
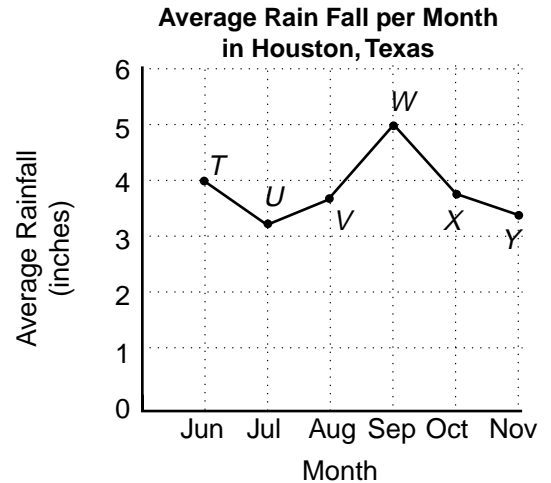
Month

1. During what month did the Polar Bears win 10 games?

_____

2. How many games did the Polar Bears win in January?

_____

3. Between what 2 months did the number of games won increase the most?

_____

4. What is the difference between the number of games won in October and the number won in March?

_____

5. What does Point *P* represent?

_____
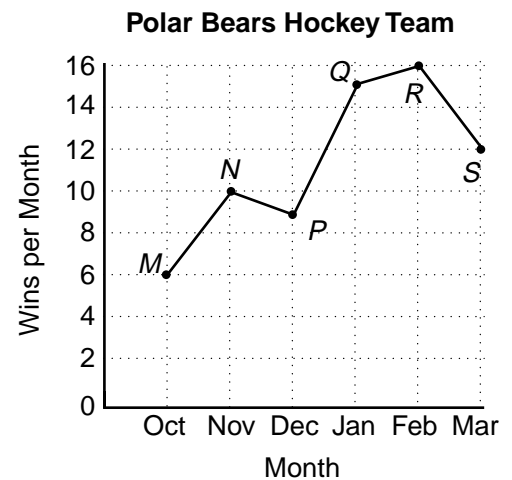
Reading and Making Line Graphs (continued)

Use the graph at the right for Exercises 6–8.

Mark's Home Runs

6. In what year did Mark hit 52 home runs?

   _____

7. Between what 2 years did Mark's
   number of home runs increase the most?

   _____

8. How many home runs did Mark hit in 1998?

   _____
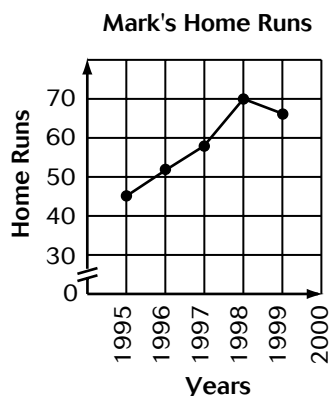
Use the data in the table at the right for
Exercises 9 and 10.

9. Make a line graph using this data.

Number of raffle tickets sold

Day	Number
Monday	45
Tuesday	47
Wednesday	52
Thursday	54
Friday	56

10. Between what 2 days was the greatest increase in tickets sold?

    _____

Test Prep Choose the correct letter for the answer.

Use the data and line graph from Exercises 9–10.

11. What trend does the graph show?

    A Ticket sales are decreasing each day.

    B Ticket sales are increasing each day.

    C The cost of tickets is increasing each day.

    D No trends can be determined.

Double Bar Graphs

Example

Use the graph at the right to answer the questions.

U.S. Commercial Radio Stations

What trend does the graph show?

The number of both types of stations is increasing.

Between which two consecutive years did the number of News/Talk Stations surpass the number of Rock Stations?

Between 1991 and 1992

Between which two consecutive years did the greatest increase in the number of rock stations occur?

Between 1990 and 1991
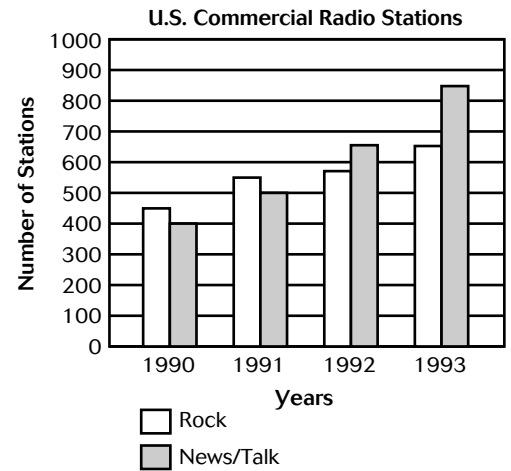
Use the graph at the right to answer Questions 1–4.

Fund-raising Sales

1. What does each pair of bars represent?

_____

_____

2. For which item were the most boxes sold?

_____

3. How many more caramels did 5th graders sell as compared to 6th graders?

_____

4. Which type of box had the most sales for 5th graders? _____

Which type of box had the most sales for 6th graders? _____
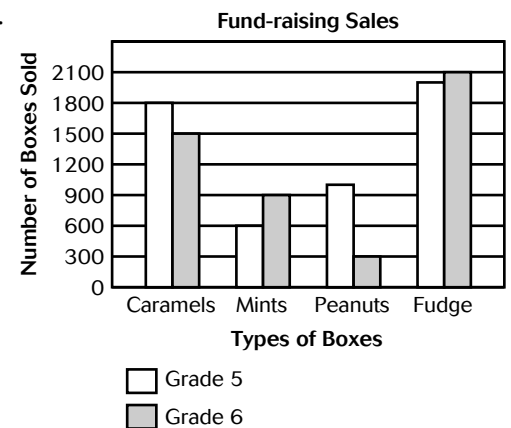
Double Bar Graphs (continued)

Use the graph at the right to answer Questions 5–9.

Favorite Subjects

5. What does each pair of bars represent.

_____

_____

_____

6. For which subject is the difference in choice the greatest?

_____

7. Which subject was chosen as favorite the most?

_____

8. What subject was least popular with 5th graders? _____

What subject was least popular with 6th graders? _____

9. Mental Math What was the total number of students who chose Math as their favorite subject? _____
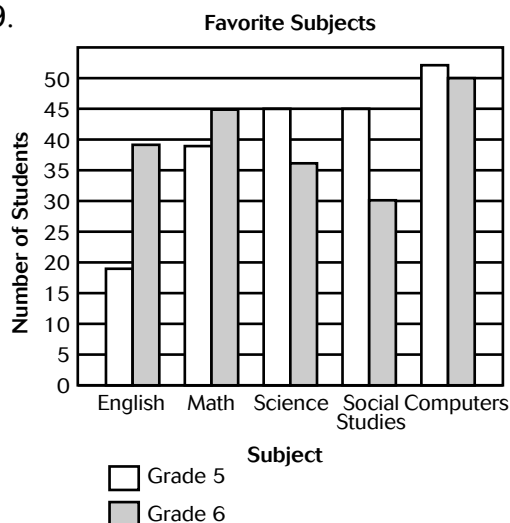
Test Prep Choose the correct letter for each answer.

The data in this table will be used to make a double bar graph.

State Fair Attendance

Day	1996	1997
Friday	8,500	10,000
Saturday	10,000	14,000
Sunday	12,000	14,000
Monday	7,000	9,000
Tuesday	3,500	8,000
Wednesday	4,000	8,500
Thursday	4,500	9,000

10. In the graph, the attendance figures will be shown on the vertical scale. What information should be shown on the horizontal scale?

A Years **C** Days of the week

B Weeks **D** Admission price

11. Which scale would be best for the attendance figure on the vertical axis?

F 10 **H** 500

G 100 **J** 2,000

Adding and Subtracting Decimals

Example 1

Find $7.135 - 4.271$.

Step 1 Line up the decimal points.

Step 2 Subtract the thousandths. Decide if you need to regroup.

Step 3 Subtract the hundredths and tenths. Decide if you need to regroup.

Step 4 Subtract the whole numbers. Place the decimal point in your answer.

```
                                        10                    10
                                 6  0̸ 13              6  0̸ 13
    7.135          7.13 5      7.1 3 5            7.1 3 5
  − 4.271        − 4.27 1      − 4.2 7 1          − 4.2 7 1
  ────────       ────────      ──────────        ──────────
                        4           8 6 4           2.8 6 4
```

Check by estimating. $7 - 4 = 3$
The answer is reasonable since 2.864 is close to 3.

---

1. 8.41
      $+ 3.92$

2. 9.54
      $+ 6.71$

3. 45.37
      $+ 22.18$

4. 31.24
      $+ 15.76$

5. 225.75
      $+ \ 30.99$

6. 178.50
      $+ \ 23.44$

7. 0.873
      $+ 0.125$

8. 31.164
      $+ \ 9.235$

9. 6.95
      $- 4.13$

10. 8.71
       $- 5.26$

11. 12.59
       $- \ 7.27$

12. 53.65
       $- 39.10$

13. 189.46
       $- \ 63.54$

14. 517.96
       $- \ 32.50$

15. 0.954
       $- 0.762$

16. 5.017
       $- 1.908$

Name_____

Adding and Subtracting Decimals (continued)

17. 43.72
   − 18.51

18. 25.83
   + 14.76

19. 75.77
   − 64.89

20. 865.80
   + 74.95

21. 0.951
   − 0.678

22. 0.810
   + 0.125

23. 7.618
   − 4.909

24. 6.234
   + 5.195

25. $757.9 - 82.6$

26. $2.95 - 1.948$

27. $12.7 + 6.394$

_____   _____   _____

28. French fries at a fast food restaurant cost $0.99, hamburgers cost $1.59, and drinks cost $1.19. How much will it cost to buy a hamburger and french fries?

_____

29. Algebra If $18.6 + n = 65$, find n.

_____

30. Algebra If $n = 43.2 + 1.95$, find n.

_____

31. Mental Math Find the sum of 0.98, 0.02, 3.20, 0.80, and 5.13.

_____

Test Prep Choose the correct letter for each answer.

32. Find $12.749 - 3.65$.

   A 12.384   **B** 12.424   **C** 9.099   **D** 9.119   **E** NH

33. A chicken weighs 3.15 kg and a duck weighs 4.9 kg. How much do the two weigh together?

   F 8.05 kg   **G** 3.54 kg   **H** 7.95 kg   **J** 8.95 kg   **K** NH

Variables and Tables

Example

In the table at the right, the same rule is used with each number in Column A and the corresponding result is given in Column B. Write the rule using words and using a variable. Let the variable represent any number in Column A.

The rule is: Multiply by 7. If *n* represents any number in Column A, the rule could be stated $n \times 7$.

A	B
1	7
2	14
4	28
5	35
7	49
9	63

Find the rule for each table. Give the rule using words and using a variable. Let the variable represent any number in Column A.

1.

A	B
2	8
3	9
14	20
21	27

_____

_____

2.

A	B
24	12
20	10
16	8
14	7

_____

_____

3.

A	B
27	24
20	17
18	15
12	9

_____

_____

4.

A	B
2	8
4	16
5	20
7	28

_____

_____

5.

A	B
10	1
14	5
22	13
26	17

_____

_____

6.

A	B
12	2
18	3
24	4
30	5

_____

_____

7.

A	B
7	15
10	18
11	19
15	23

_____

_____

8.

A	B
50	10
40	8
35	7
25	5

_____

_____

Name⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Variables and Tables (continued)

Find the rule for each table. Give the rule using words and using a
variable. Let the variable represent any number in Column A.

9.

A	B
0	0
8	2
12	
20	5
28	
40	10

10.

A	B
7	5
9	
15	
16	14
20	18
25	23

11.

A	B
0	0
1	9
4	
5	45
7	63
10	

12.

A	B
3	
5	22
7	24
12	29
25	
32	49

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Write each rule using a variable.

13. Multiply a number by 2.   **14.** Add 12 to a number.   **15.** Divide a number by 3.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Write each rule using words.

16. $n + 3$ **17.** $n \times 8$ **18.** $n \div 17$ **19.** $n \times 21$

⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯⎯⎯⎯⎯

20. What rule could be used to find the number of feet in n yards?
Write the rule using words and using a variable.

⎯⎯

⎯⎯

Test Prep Choose the correct letter for the answer.

21. Find the rule for the table at the right.

A $n + 8$ **C** $n \div 5$

B $n \times 5$ **D** $n + 12$

A	B
$n = 0$	0
$n = 3$	15
$n = 5$	25
$n = 7$	35

Rounding Whole Numbers and Decimals

Example 1

Round 56,295,741 to the nearest million.

Step 1 Find the millions place.

56,295,741

Step 2 Look at the digit to the right.

56,295,741

Step 3 If the digit is less than 5, round down. If that digit is 5 or greater, round up.

56,295,741 rounds to 56,000,000

Example 2

Round 26.175 to the nearest hundredth.

Step 1 Find the hundredth place.

26.175

Step 2 Look at the digit to the right.

26.175

Step 3 If the digit is less than 5, round down. If that digit is 5 or greater, round up.

26.175 rounds to 26.18

Round 7,193,568 to the given place.

1. Nearest thousand

2. Nearest ten thousand

3. Nearest hundred thousand

4. Nearest million

_____   _____   _____   _____

Round 82.946 to the given place.

5. Nearest hundredth

6. Nearest tenth

7. Nearest one

8. Nearest ten

_____   _____   _____   _____

Round each number to the underlined place.

9. 3,751

10. 29,758

11. 694,832

12. 0.581

_____   _____   _____   _____

Name _____

Rounding Whole Numbers and Decimals (continued)

Round 475,819,360 to the given place.

13. Nearest ten thousand

_____

14. Nearest hundred thousand

_____

15. Nearest million

_____

16. Nearest ten million

_____

Round 37.054 to the given place.

17. Nearest hundredth **18.** Nearest tenth   **19.** Nearest one   **20.** Nearest ten

_____   _____   _____   _____

Round each number to the underlined place.

21. 16,917,800   **22.** 375,418   **23.** 0.905

_____   _____   _____

24. Math Reasoning When 44,499,999 is rounded to the nearest
million, does it round up or down? Explain.

_____

_____

_____

25. Mark wants to buy a new CD that costs $15.70. To the
nearest dollar, how much money does he need?   _____

Test Prep Choose the correct letter for each answer.

26. Round 38,154,960 to the nearest hundred thousand.

A 38,155,000   **B** 38,200,000 **C** 38,000,000 **D** 38,150,000 **E** NH

27. Julie has saved $34.53. To the nearest ten dollars, about how
much money does she have?

F $34.00   **G** $35.00   **H** $30.00   **J** $40.00   **K** NH

Drawing Patterns for Solids

Example 1

Draw a net for the cube.

Imagine what it would look like if it were opened up and flattened out.
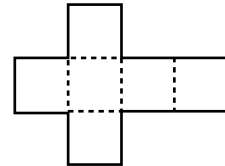
Example 2

Draw a net for the cylinder.

Imagine taking the cylinder apart. It would have two circles, one on each end. If the middle part were cut and flattened out, it would make a rectangle.
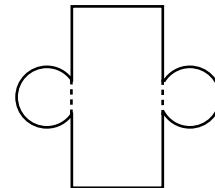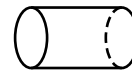
Tell which figure can be made from the net.

1.

2.

3.

_____

_____

_____

4.

5.

6.

_____

_____

_____
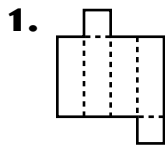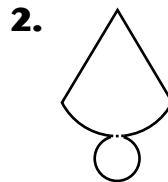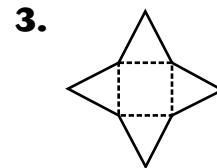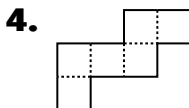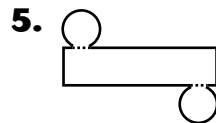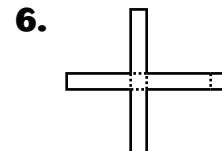
Drawing Patterns for Solids (continued)

Identify the net for each solid.

7. cylinder

a.
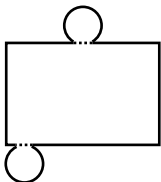
b.
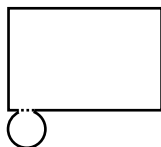
8. cube

a.
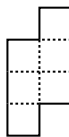
b.
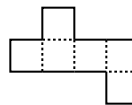
9. rectangular prism

a.
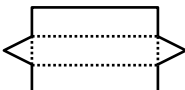
b.
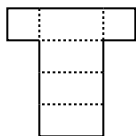
10. cone

a.
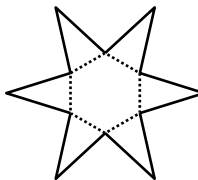
b.
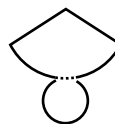
11. Which solid has a net that can be made using two circles and a rectangle?

_____

_____

12. Math Reasoning Is it possible to make a net for a sphere? Explain.

_____

_____

Test Prep Choose the correct letter for the answer.

13. Which solid figure can be made from the net at the right?

   A Cylinder

   B Cone

   C Square pyramid

   D Cube

Reading Line Graphs

Example

Use the line graph at the right.

What does Point *U* on the graph tell you?
  In July there is usually a little over
  3 inches of rainfall.

About how much rain usually falls in October?
  A little under 4 inches.

What month has the highest rainfall on average?
  September—its point is the highest
  on the graph.

Average Rain Fall per Month in Houston, Texas

Use the line graph at the right for Exercises 1–5.

Polar Bears Hockey Team
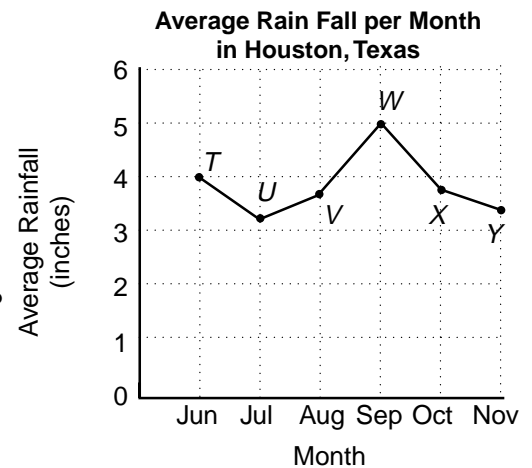
1. Which point represents
   15 games won in January? _____

2. During which month did the Polar
   Bears win the greatest number
   of games?

   _____

3. How many games were won
   in March? _____

4. What is the difference between the number of games won
   in October and the number won in March? _____

5. What does Point *N* represent?

   _____
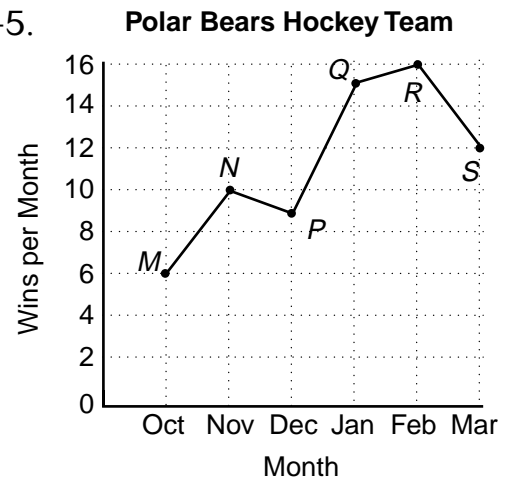
Reading Line Graphs (continued)

Use the line graph at the right for
Exercises 6–10.

Dave's Height
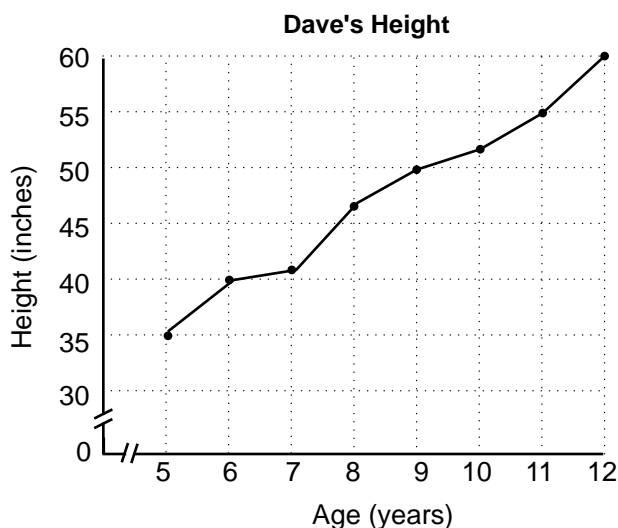
6. How tall was Dave on his
7th birthday?

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

7. How many inches did Dave
grow from age 7 to age 8?

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

8. How old was Dave when he
reached a height of 47 inches?

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

9. During which year(s) did Dave
grow the most in height?

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

10. How many inches did Dave grow
from age 5 to age 12?

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

11. Math Reasoning Would you expect that the values
in the line graph above would ever decrease? Why or
why not?

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Test Prep Choose the correct letter for each answer.

Use the line plot above.

12. How tall was Dave when he was 11 years old?

   A 20 inches   **B** 52 inches   **C** 55 inches   **D** 60 inches

13. How old was Dave when he reached 52 inches in height?

   F 7   **G** 9   **H** 10   **J** 12

Subtracting Decimals

Example 1

Find 4.7 − 2.8.

     5 −   3 = 2

         ┌─── Line up the decimal points.
3 ↓17
4.7   Subtract the tenths, regroup
− 2.8 if necessary.
──────
 1.9   Subtract the ones, and
       place the decimal point.

Estimate first by rounding each decimal to the nearest whole number.

Now subtract to find the actual difference. The difference is 1.9. This is a reasonable answer because it is close to the estimate of 2.

Example 2

Find 493.60 − 272.95.

    2 ↓15 10   ┌─── Line up the decimal points.
 493.60   Write zeros as placeholders.
− 272.95
─────────
 220.65

Estimate first. Then find each difference.

1. 3.4 − 2.2	**2.** 5.69 − 4.35	**3.** 13.7 − 10.08	**4.** 785.49 − 93.6	**5.** 47 − 12.43
6. 342.6 − 150.9	**7.** 819.05 − 80.2	**8.** 6.1 − 0.85	**9.** $29.12 − 16.84	**10.** 487.9 − 49.06

11. 31.6 − 10.5   **12.** $89.95 − $64.09   **13.** 512.6 − 309.04

_____   _____   _____

14. $105 − $58.64   **15.** 64.01 − 15.4   **16.** 416 − 92.8

_____   _____   _____

Subtracting Decimals (continued)

Estimate first. Then find each difference.

17. 38.42
      − 19.51

18. $175.75
      −   16.99

19. 45.6
      − 9.18

20. 82.47
      − 6.57

21. 97.64
      − 37.9

22.   619
      − 561.8

23. $438.52
      −   180.09

24. 68.4
      − 46.92

25. 323.82
      − 57.93

26. 42
      − 16.5

27. 59.4 − 12.9

28. 217 − 64.59

29. $1.92 − $0.89

30. Mental Math Find 95.2 − 13.2. _____

31. Algebra Brandy weighs 73.42 pounds now. Last year she weighed 64.73 pounds How much more does she weigh now?

32. Brent's dog weighs 16.31 pounds. Carl's dog weighs 32.4 pounds. Which boy has the heavier dog? How much more does it weigh?

33. Paulie caught a 1.43-pound fish and a 5.7-pound fish. Janice caught a 7.09-pound fish. Which person caught more pounds of fish? How much more?

Test Prep Choose the correct letter for each answer.

34. Find 73 − 47.38.

   A 25   **B** 25.6   **C** 25.62   **D** 25.64   **E** NH

35. Buzz bought a 50-pound bag of dog food. One week later it weighed 43.81 pounds. How much did his dog eat?

   F 6.19 lb   **G** 6.2 lb   **H** 6 lb   **J** 6.91 lb   **K** NH

Adding Decimals

Example 1

Find 4.3 + 2.9.

4 + 3 = 7

┌─── Line up the decimal points.
1↓

4.3   Add the tenths,
+ 2.9   regroup if necessary.
─────
7.2   Add the ones, then place
         the decimal point.

Estimate first by rounding each decimal to the nearest whole number.

Now add to find the actual sum.

The sum is 7.2. This is a reasonable answer because it is close to the estimate of 7.

Example 2

Find 3.7 + 12 + 6.43.

┌─── Line up the decimals.
1 1↓
  3.70
 12.00 ←── Write zeros as place
+ 6.43   holders.
─────
 22.13

Estimate first. Then find each sum.

1. 2.6 + 3.1	**2.** 0.58 + 6.13	**3.** 5.1 + 3.97	**4.** 16.18 + 10.02	**5.** 4 1.41 + 13.9

6. 10.7 + 2.38	**7.** 57.09 + 12.62	**8.** 0.89 2.03 + 6.07	**9.** 25.67 3 + 11.09	**10.** 8.9 + 2.2

11. 1.1 + 7.9   **12.** 6.31 + 12.92   **13.** 81.7 + 16.6

_____   _____   _____

Adding Decimals (continued)

Estimate first. Then find each sum.

14. 5.18
      + 3.24

15. 9.37
      + 0.44

16. 13.8
      + 5.71

17. 63.49
      + 8.8

18. $1.75
      + 5.15

19.   4.9
       21.7
      + 35.4

20. 363.86
        4.3
      + 43.03

21.   17.21
        49.37
      + 3.8

22. $20.50
        17.81
      + 4.09

23. 412.97
         3.7
      + 19.1

24. Mental Math 5.8 + 3.2 + 4.5 _____

Use the table at the right for Exercises 25–27.

25. How much do Derek and
Amy weigh together? _____

26. Algebra Peppe and someone in his class
weigh 123.47 lb together. Who is it?

_____

27. How much do the largest and
smallest students weigh in all? _____

Weights of Students in Room B		
Jozie	70.16	lb
Derek	56.4	lb
Peppe	58.47	lb
Amy	51	lb
John	73.7	lb
Barnaby	65	lb
Bettie	62.39	lb

Test Prep Choose the correct letter for
each answer.

28. Phillip spent $1.63 on candy and $1.47 on a drink.
How much did he spend?

A $3.00   **B** $3.10   **C** $3.20   **D** $2.50   **E** NH

29. Plattville received 1.87 inches of rain on Friday and
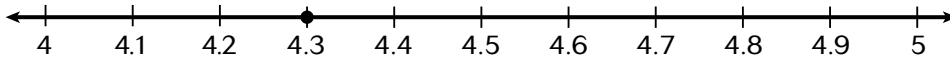4.7 inches of rain on Saturday. How much rain did they
receive in all?

F 5.57   **G** 6.5   **H** 6.75   **J** 5.5   **K** NH

Fractions, Decimals, and the Number Line
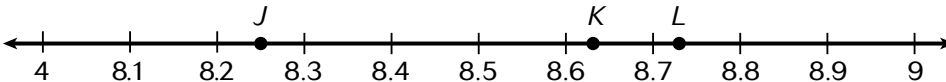
Example 1

Show 4.3 on a number line.

Place 4 and 5 on a number line.
Then divide the distance from
4 to 5 into 10 equal parts.

Example 2

Which point is located at 8.63?

8.63 is not quite halfway
between 8.60 and 8.70.

Point *K* is located at about 8.63.

For Exercises 1–6, use the two number lines below. What point
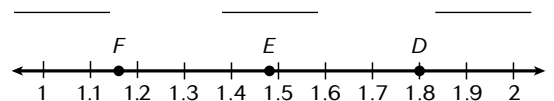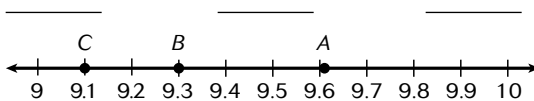shows the location of each number?

1. 9.3 **2.** 9.61 **3.** $9\frac{1}{10}$ **4.** 1.8 **5.** $1\frac{16}{100}$ **6.** 1.48

For Exercises 7–12, use the two number lines below. What point
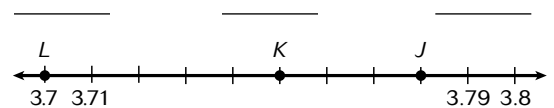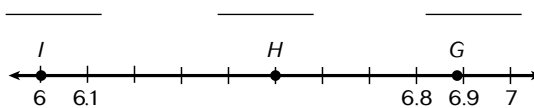shows the location of each number?

7. 6.0 **8.** $6\frac{1}{2}$ **9.** 6.87 **10.** 3.7 **11.** 3.78 **12.** $3\frac{3}{4}$

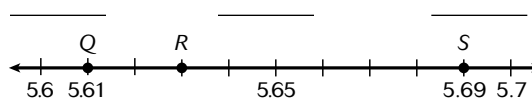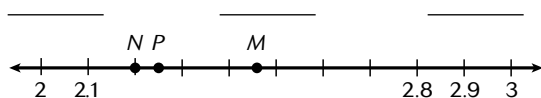## Fractions, Decimals, and the Number Line (continued)

For Exercises 13–18, use the two number lines below. What point shows the location of each number?

13. 2.2   **14.** 2.46   **15.** $2\frac{1}{4}$ **16.** 5.69   **17.** 5.63   **18.** 5.61

```
_____     _____   _____              _____   _____          _____
        N P      M                           Q      R                S
  2   2.1              2.8 2.9  3       5.6 5.61        5.65        5.69 5.7
```

Show each set of numbers on a number line. Then order the numbers from least to greatest.

19. $5\frac{1}{2}$, 6.8, $6\frac{3}{10}$

_____

20. $\frac{18}{4}$, 4.73, 4.1

_____

21. 8.12, $8\frac{3}{5}$, 8.87
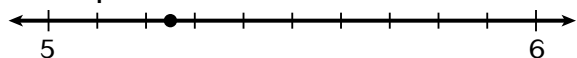
_____

22. The kids in Room 8 measured their feet. Brandon's foot is $7\frac{1}{4}$ inches long, Jenny's is 7.4 inches, Brenda's is $6\frac{4}{5}$ inches. Show these numbers on a number line. Whose foot is the shortest? _____

Test Prep Choose the correct letter for each answer.

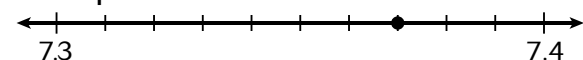**23.** What point is shown on the number line?

```
  +--+--+--●--+--+--+--+--+--+--+-->
  5                      6
```

  A 5.35   **B** 5.2   **C** 5.25   **D** 5.3

24. What point is shown on the number line?

```
  +--+--+--+--+--●--+--+-->
  7.3              7.4
```

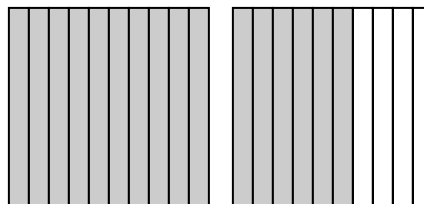 **F** 7.36   **G** 7.37   **H** 7.3   **J** 7.38

Relating Mixed Numbers and Decimals

Example 1

Write $1\frac{6}{10}$ as a decimal.

$1\frac{6}{10} = 1.6$

Both are called one and six tenths.
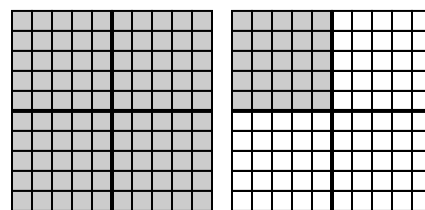
Example 2

Write $\frac{5}{4}$ as a decimal.

Change $\frac{5}{4}$ to a mixed number. $\frac{5}{4} = 1\frac{1}{4}$

Find an equivalent fraction with $\quad 1\frac{1}{4} = 1\frac{25}{100}$
10 or 100 in the denominator.

$1\frac{25}{100} = 1.25$

Both are called one and twenty-five hundredths.

Write each number as a decimal.

1. $4\frac{9}{10}$ **2.** $17\frac{81}{100}$ **3.** $6\frac{1}{2}$ **4.** $51\frac{2}{100}$ **5.** $\frac{9}{4}$

_____   _____   _____   _____   _____

6. $8\frac{13}{100}$ **7.** $\frac{9}{2}$ **8.** $5\frac{3}{4}$ **9.** $63\frac{4}{20}$ **10.** $12\frac{11}{50}$

_____   _____   _____   _____   _____

Write each decimal as a fraction or mixed number.

11. 0.7   **12.** 5.1   **13.** 16.15   **14.** 41.06   **15.** 56.2

_____   _____   _____   _____   _____

16. 2.04   **17.** 0.34   **18.** 7.70   **19.** 90.08   **20.** 0.05

_____   _____   _____   _____   _____

Relating Mixed Numbers and Decimals (continued)

Write each number as a decimal.

21. $3\frac{3}{10}$ **22.** $13\frac{12}{100}$ **23.** $\frac{27}{10}$ **24.** $9\frac{9}{100}$ **25.** $\frac{16}{5}$

_____   _____   _____   _____   _____

Write each decimal as a fraction or mixed number.

26. 1.3   **27.** 27.60   **28.** 3.07   **29.** 0.49   **30.** 40.01

_____   _____   _____   _____   _____

31. Daisy pitches for the Duncanville Dragons. Her earned
run average is 3.62. Write her ERA as a mixed number. _____

32. Math Reasoning Franklin's ERA is 2.07 and Evan's ERA
is 2.70. Which pitcher has the lower ERA? Explain.

_____

_____

_____

33. Mental Math Gloria picked three pumpkins. The first weighed
8.63 pounds. The second weighed 2 pounds more than the first. The
third weighed six pounds more than the second. What is the weight
of the biggest pumpkin? Then write it as a decimal and a fraction.

_____

34. Brad went to the doctor for a check-up. Brad's weight
was 64.08 pounds. Write Brad's weight as a mixed number. _____

Test Prep Choose the correct letter for each answer.

35. Which decimal is equal to $\frac{12}{5}$?

A 2.4   **B** 2.04   **C** 4.2   **D** 1.4

36. Which fraction is not equal to 1.5?

F $1\frac{5}{10}$ **G** $1\frac{1}{2}$ **H** $1\frac{3}{7}$ **J** $1\frac{50}{100}$
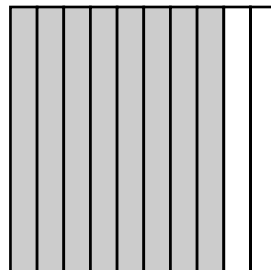
Relating Fractions and Decimals

Example 1

The shaded amount may be written as a fraction or a decimal.

Fraction: $\dfrac{8}{10}$

Decimal: 0.8

Both are called eight tenths.

Tenths can be made into hundredths by adding zeroes.

$\dfrac{8}{10} = \dfrac{80}{100}$ $0.8 = 0.80$
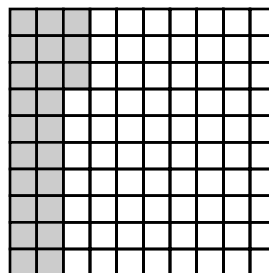
Eight tenths equals eighty hundredths.

Example 2

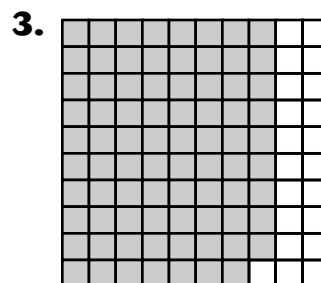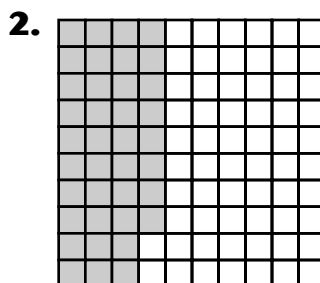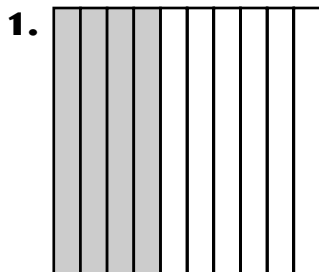The shaded amount may be written as a fraction or a decimal.

Fraction: $\dfrac{23}{100}$

Decimal: 0.23

Both are called twenty-three hundredths.

Write a fraction and a decimal to tell how much is shaded.

1.

2.

3.

_____   _____   _____

Relating Fractions and Decimals (continued)

Write each fraction as a decimal.

4. $\frac{4}{10}$ **5.** $\frac{74}{100}$ **6.** $\frac{59}{100}$ **7.** $\frac{17}{100}$ **8.** $\frac{5}{100}$

_____   _____   _____   _____   _____

Write an equivalent decimal.

9. 0.40   **10.** 0.9   **11.** 0.7   **12.** 0.20   **13.** 0.5

_____   _____   _____   _____   _____

Mark has 100 coins. Of these, 39 coins are pennies, 10 are quarters, 23 are nickels, and the rest are dimes. Use this information in Exercises 14–16.

14. Write a fraction and a decimal to show what part of Mark's coins are pennies.   _____

15. Algebra How many dimes does Mark have? $39 + 10 + 23 + d = 100$. Solve for d.   _____

Then write a fraction and a decimal to show what part of Mark's coins are dimes.   _____

16. Mental Math How many of Mark's coins are silver? Then write a fraction and a decimal to show what part of Mark's coin are silver.   _____

Test Prep Choose the correct letter for each answer.

17. Find the equivalent fraction for 0.02.

    A $\frac{2}{10}$ **B** $\frac{20}{100}$ **C** $\frac{2}{100}$ **D** $\frac{20}{10}$

18. Danny bought 10 cookies. 3 cookies are oatmeal and 7 are chocolate chip. Which decimal shows the part of the cookies that are chocolate chip?

    F 0.7   **G** 0.30   **H** 0.3   **J** 0.07

Comparing and Ordering Fractions

Example

Compare: $\dfrac{4}{12}$ ● $\dfrac{7}{9}$

Rewrite the fractions using the same denominator.
Think: What number has 7 and 9 as factors?

$$\dfrac{4}{12} = \dfrac{12}{36} \qquad \dfrac{7}{9} = \dfrac{28}{36}$$

Compare the new fractions: $\dfrac{12}{36} < \dfrac{28}{36}$

Write the comparison using the original fractions: $\dfrac{4}{12} < \dfrac{7}{9}$

Compare. Write $>$, $<$, or $=$ for each ●.

1. $\dfrac{1}{4}$ ● $\dfrac{3}{4}$

2. $\dfrac{5}{10}$ ● $\dfrac{3}{10}$

3. $\dfrac{2}{3}$ ● $\dfrac{5}{9}$

4. $\dfrac{7}{9}$ ● $\dfrac{28}{36}$

5. $\dfrac{6}{15}$ ● $\dfrac{2}{5}$

6. $\dfrac{10}{14}$ ● $\dfrac{4}{7}$

7. $\dfrac{3}{5}$ ● $\dfrac{7}{12}$

8. $\dfrac{4}{14}$ ● $\dfrac{2}{5}$

9. $\dfrac{4}{7}$ ● $\dfrac{2}{9}$

10. $\dfrac{1}{5}$ ● $\dfrac{2}{8}$

11. $\dfrac{3}{8}$ ● $\dfrac{2}{6}$

12. $\dfrac{4}{6}$ ● $\dfrac{5}{9}$

Name _____

Comparing and Ordering Fractions (continued)

Compare. Write >, <, or = for each ●.

13. $\frac{3}{5}$ ● $\frac{7}{15}$

14. $\frac{8}{10}$ ● $\frac{13}{15}$

15. $\frac{2}{8}$ ● $\frac{1}{4}$

16. $\frac{7}{10}$ ● $\frac{3}{4}$

17. $\frac{6}{14}$ ● $\frac{3}{7}$

18. $\frac{8}{12}$ ● $\frac{5}{6}$

Write each set of fractions in order from least to greatest.

19. $\frac{1}{4}, \frac{6}{7}, \frac{3}{5}$

20. $\frac{5}{8}, \frac{8}{10}, \frac{2}{7}$

21. $\frac{5}{9}, \frac{10}{12}, \frac{5}{7}$

22. $\frac{3}{9}, \frac{12}{15}, \frac{5}{6}$

_____   _____   _____   _____

23. Math Reasoning Give 3 fractions with different denominators that are less than $\frac{2}{3}$.

_____

24. Jim's height is 4 feet, $3\frac{3}{4}$ inches. Rex's height is 4 feet, $3\frac{3}{8}$ inches. Joan's height is 4 feet, $3\frac{7}{16}$ inches. Who is the tallest? Who is the shortest?

_____

25. Two students are writing stories. Eric's story is $\frac{2}{3}$ of a page. Jason's story is $\frac{5}{8}$ of a page. Who's story is longer?

_____

Test Prep Choose the correct letter for the answer.

26. Which fraction is greater than $\frac{5}{9}$?

A $\frac{3}{6}$ **B** $\frac{1}{3}$ **C** $\frac{7}{18}$ **D** $\frac{2}{3}$

Equivalent Fractions

Example 1

Use multiplication to find a fraction that is equivalent to $\frac{3}{7}$.

Multiply the numerator and
denominator by the same number.

$$\frac{3 \longrightarrow \times 2 = 6}{7 \longrightarrow \times 2 = 14}$$

Example 2

Use division to write a fraction that is equivalent to $\frac{16}{20}$.

Think of a number that is a factor of both 16 and 20.

2 is a factor of both 16 and 20.
Divide the numerator and denominator by that factor.

$$\frac{16 \div 2 = 8}{20 \div 2 = 10}$$

If you continue to divide until 1 is the only factor
of both the numerator and the denominator, you
find the fraction in simplest form.

$$\frac{16 \div 2 = 8 \div 2 = 4}{20 \div 2 = 10 \div 2 = 5}$$

$\frac{8}{10}$ and $\frac{4}{5}$ are both equivalent to $\frac{16}{20}$. Only $\frac{4}{5}$ is in simplest form.

1. $\frac{1}{4} = \frac{}{8}$

2. $\frac{5}{10} = \frac{}{2}$

3. $\frac{2}{3} = \frac{}{9}$

4. $\frac{7}{9} = \frac{}{36}$

5. $\frac{6}{15} = \frac{}{5}$

6. $\frac{18}{24} = \frac{}{4}$

7. $\frac{5}{3} = \frac{}{12}$

8. $\frac{12}{20} = \frac{}{5}$

9. $\frac{4}{7} = \frac{}{21}$

Equivalent Fractions (continued)

10. $\dfrac{1}{5} = \dfrac{}{15}$

11. $\dfrac{8}{10} = \dfrac{}{5}$

12. $\dfrac{2}{8} = \dfrac{}{4}$

13. $\dfrac{7}{10} = \dfrac{}{20}$

14. $\dfrac{6}{14} = \dfrac{}{7}$

15. $\dfrac{8}{11} = \dfrac{}{22}$

Write a fraction or mixed number equivalent to the fraction shown.

16. $\dfrac{3}{7}$ _____

17. $\dfrac{1}{8}$ _____

18. $2\dfrac{3}{5}$ _____

19. $\dfrac{6}{10}$ _____

Write each fraction or mixed number in simplest form.

20. $\dfrac{9}{12}$ _____

21. $\dfrac{10}{15}$ _____

22. $1\dfrac{6}{8}$ _____

23. $\dfrac{16}{24}$ _____

24. Math Reasoning Use 2 number lines to show

that $\dfrac{1}{3}$ is the same as $\dfrac{2}{6}$.

25. On Tuesday, $\dfrac{2}{3}$ of the class time was spent on English

projects. Write three equivalent fractions for $\dfrac{2}{3}$. _____

Test Prep Choose the correct letter for each answer.

26. Which fraction is equivalent to $\dfrac{5}{9}$?

A $\dfrac{10}{9}$　　　**B** $\dfrac{10}{18}$　　　**C** $\dfrac{15}{18}$　　　**D** $\dfrac{5}{18}$

27. Which fraction is in simplest form?

F $\dfrac{5}{6}$　　　**G** $\dfrac{4}{6}$　　　**H** $\dfrac{3}{6}$　　　**J** $\dfrac{2}{6}$

Fractions and Division

Example

Find $12 \div 5$.

Give the answer as a fraction, a mixed number, or a whole number.

$12 \div 5 = \dfrac{12}{5}$, or $2\dfrac{2}{5}$

Give each answer as a fraction, a mixed number, or a whole number.

1. $2 \div 6 = $ _____

2. $3 \div 2 = $ _____

3. $7 \div 9 = $ _____

4. $1 \div 5 = $ _____

5. $13 \div 2 = $ _____

6. $3 \div 4 = $ _____

7. $2 \div 8 = $ _____

8. $15 \div 3 = $ _____

9. $8 \div 9 = $ _____

10. $10 \div 4 = $ _____

11. $12 \div 3 = $ _____

12. $6 \div 8 = $ _____

13. $7 \div 10 = $ _____

14. $12 \div 11 = $ _____

15. $18 \div 6 = $ _____

16. $2 \div 5 = $ _____

17. $5 \div 2 = $ _____

18. $9 \div 13 = $ _____

Fractions and Division (continued)

Give each answer as a fraction, a mixed number, or a whole number.

19. $6 \div 2 =$ _____   **20.** $7 \div 2 =$ _____   **21.** $3 \div 9 =$ _____

22. $1 \div 4 =$ _____   **23.** $15 \div 2 =$ _____   **24.** $3 \div 5 =$ _____

25. Algebra Evaluate $x \div 3$ for $x = 7$.   ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

26. Carlton has 3 apples to share between 4 friends. How much of an apple will each friend receive?   ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

27. Mrs. Savage baked 5 apple pies and used 4 apples to make each pie. She is dividing the pies among 3 different dishes to give to friends. How much pie will be in each dish?   ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

28. Eddie and 2 friends are cleaning the chalkboard for their teacher. Four other students are cleaning 5 erasers. How much of the chalkboard will each student clean?   ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Test Prep Choose the correct letter for each answer.

29. Find $16 \div 3$.

    A $\dfrac{3}{16}$ **B** $5\dfrac{3}{1}$ **C** $5\dfrac{1}{3}$ **D** $4\dfrac{4}{3}$

30. Fred and Max are mowing 3 acres of land. How many acres will each boy mow?

    F $1\dfrac{1}{2}$ **G** $\dfrac{2}{3}$ **H** $\dfrac{5}{3}$ **J** $\dfrac{3}{5}$

Mixed Numbers

Example 1

Write $\frac{14}{3}$ as a mixed number.

Divide the numerator by the denominator.

$$\begin{array}{r} 4 \\ 3\overline{)14} \\ \underline{-12} \\ 2 \end{array}$$

Write the quotient as the whole number.
Write the remainder as the numerator of the fraction. $4\frac{2}{3}$
Use the same denominator.

Example 2

Write $2\frac{3}{4}$ as an improper fraction.

Multiply the denominator by the whole number ⟶ 2×4

and add the numerator. ⟶ $+ 3 = 11$

Write the result over the denominator. $\frac{11}{3}$

Change each improper fraction to a mixed number or a whole
number, and change each mixed number to an improper fraction.

1. $1\frac{2}{5}$　　　　**2.** $\frac{5}{3}$　　　　**3.** $\frac{7}{6}$　　　　**4.** $2\frac{1}{7}$

_____　　　　_____　　　　_____　　　　_____

5. $\frac{9}{3}$　　　　**6.** $4\frac{4}{7}$　　　　**7.** $\frac{14}{5}$　　　　**8.** $5\frac{2}{9}$

_____　　　　_____　　　　_____　　　　_____

Mixed Numbers (continued)

Change each improper fraction to a mixed number or a whole number, and change each mixed number to an improper fraction.

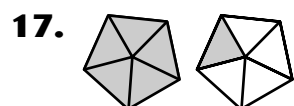**9.** $3\frac{2}{7}$ **10.** $\frac{7}{3}$ **11.** $\frac{7}{2}$ **12.** $1\frac{1}{10}$

_____   _____   _____   _____

13. $\frac{9}{4}$ **14.** $2\frac{2}{7}$ **15.** $\frac{14}{2}$ **16.** $6\frac{4}{9}$

_____   _____   _____   _____

Write an improper fraction and a mixed number
or whole number for each picture.

17.   **18.**   **19.**

_____ _____   _____ _____   _____ _____
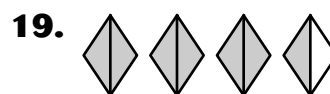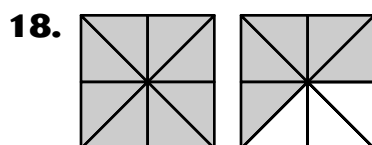
20. Math Reasoning If an improper fraction has a
numerator and denominator that are equal, then what
will the equivalent whole number always be?   _____

21. There are 12 eggs in a carton. Mrs. Hudson has
15 eggs. Use a mixed number to describe how many
cartons of eggs Mrs. Hudson has.   _____

Test Prep Choose the correct letter for the answer.

22. Change $\frac{15}{4}$ to a mixed number or whole number.

    A $2\frac{7}{4}$ **B** $3\frac{4}{3}$ **C** 4   **D** $3\frac{3}{4}$

Zeros in the Quotient

Example

Find 4,223 ÷ 7.

Estimate first: 4200 ÷ 7 = 600.

Step 1
Use the estimate to
place the first digit.
Divide the hundreds.
Multiply, subtract, compare

$$\begin{array}{r} 6 \\ 7\overline{)4,223} \\ -42 \\ \hline 0 \end{array}$$

Step 2
Bring down
the tens.
There aren't enough
tens to divide into 7
groups. Write a 0 in
the quotient.

$$\begin{array}{r} 60 \\ 7\overline{)4,223} \\ -42 \\ \hline 02 \\ -0 \\ \hline 2 \end{array}$$

Step 3
Bring down
the ones.
Divide.
Multiply and subtract.
The remainder is 2.

$$\begin{array}{r} 603\text{ R2} \\ 7\overline{)4,223} \\ -42 \\ \hline 02 \\ -0 \\ \hline 23 \\ -21 \\ \hline 2 \end{array}$$

Step 4
Check by multiplying.

Add the remainder.

$$\begin{array}{r} 603 \\ \times7 \\ \hline 4,221 \\ +2 \\ \hline 4,223 \end{array}$$

---

1. 8)824

2. 2)611

3. 9)9,243

4. 5)545

5. 7)2,124

6. 3)617

7. 4)3,631

8. 6)1,831

9. 4)4,114

Name _____

Zeros in the Quotient (continued)

10. 3)$\overline{32}$ **11.** 5)$\overline{541}$ **12.** 7)$\overline{285}$

13. 6)$\overline{3,626}$ **14.** 9)$\overline{1,856}$ **15.** 4)$\overline{432}$

16. 7)$\overline{632}$ **17.** 5)$\overline{302}$ **18.** 2)$\overline{2,191}$

19. 1,635 ÷ 8 =   **20.** 7,118 ÷ 7 =   **21.** 3,250 ÷ 8 =

_____   _____   _____

22. 802 ÷ 4 =   **23.** 2,530 ÷ 5 =   **24.** 645 ÷ 6 =

_____   _____   _____

25. Algebra Follow each rule.

Rule: Divide by 3   Rule: Divide by 5   Rule: Divide by 8

Input	Output
324	_____
606	_____
612	_____

Input	Output
505	_____
2,505	_____
3,045	_____

Input	Output
864	_____
1,624	_____
3,208	_____

26. The cafeteria has 1,630 ounces of juice on hand. Each serving contains 8 ounces. How many servings do they have?

_____

Test Prep Choose the correct letter for each answer.

27. Beth saved $213 in seven weeks for a new television that costs $199. If she saved about the same amount each week, how much did she save per week?

    A over $30   **B** under $30 **C** under $14 **D** under $29 **E** NH

Dividing Multidigit Numbers

Example

Find 4,323 ÷ 7.

Estimate first: 4,200 ÷ 7 = 600.

Step 1
Use the estimate to
place the first digit.
Divide the hundreds.
Multiply, subtract, compare.

```
      6
7)4,323
   -42
     1
```

Step 2
Bring down
the tens.
Divide.
Multiply, subtract,
compare.

```
     61
7)4,323
   -42
     12
    -7
      5
```

Step 3
Bring down
the ones.
Divide.
Multiply and subtract.
The remainder is 4.

```
    617 R4
7)4,323
   -42
     12
    -7
     53
    -49
      4
```

Step 4
Check by multiplying.

```
     617
   ×   7
   4,319
   +   4
   4,323
```

---

1. 8)624

2. 2)30

3. 9)8,244

4. 5)465

5. 7)2,304

6. 3)637

7. 4)3,565

8. 6)1,867

9. 4)4,514

Dividing Multidigit Numbers (continued)

10. $3\overline{)48}$ **11.** $5\overline{)85}$ **12.** $7\overline{)245}$

13. $6\overline{)3,726}$ **14.** $9\overline{)1,956}$ **15.** $4\overline{)78}$

16. $7\overline{)277}$ **17.** $5\overline{)312}$ **18.** $2\overline{)1,591}$

19. $1,235 \div 8 =$ **20.** $7,818 \div 7 =$ **21.** $1,590 \div 8 =$

_____ _____ _____

22. $902 \div 4 =$ **23.** $2,690 \div 5 =$ **24.** $345 \div 6 =$

_____ _____ _____

25. Algebra Find $5,322 \div n$ if $n = 6$. _____

26. An office manager orders envelopes to divide among
7 employees. He orders 12 boxes, or 240 envelopes. How
many envelopes will each employee receive? Will there be
any left over? If so, how many?

_____

Test Prep Choose the correct letter for each answer.

27. Find $441 \div 7$.

   A 630   **B** 64 R6   **C** 62 R7   **D** 63   **E** NH

28. A company prints 248 greeting cards. One box contains
8 cards and sells for $4. How many boxes of cards
were printed?

   F 62   **G** 31   **H** 32   **J** 124   **K** NH

Mental Math: Dividing Multiples of 10, 100, and 1,000

Example

Find 1,500 ÷ 5.

Use a basic fact and look for a pattern with zeros.

15 ÷ 5 = 3
150 ÷ 5 = 30
1,500 ÷ 5 = 300

So, 1,500 ÷ 5 = 300.

---

1. 360 ÷ 6 = _____

2. 2,800 ÷ 7 = _____

3. 160 ÷ 2 = _____

4. 450 ÷ 9 = _____

5. 2,100 ÷ 7 = _____

6. 640 ÷ 8 = _____

7. 3,600 ÷ 4 = _____

8. 180 ÷ 6 = _____

9. 4,200 ÷ 7 = _____

10. 540 ÷ 6 = _____

11. 72,000 ÷ 8 = _____

12. 3,000 ÷ 6 = _____

13. 2,400 ÷ 4 = _____

14. 2,400 ÷ 8 = _____

15. 600 ÷ 2 = _____

16. 1,200 ÷ 3 = _____

17. 2,800 ÷ 7 = _____

18. 2,000 ÷ 5 = _____

Mental Math: Dividing Multiples of 10, 100, and 1,000 (continued)

19. $810 \div 9 =$ _____   **20.** $3,500 \div 7 =$ _____   **21.** $2,100 \div 7 =$ _____

22. $14,000 \div 2 =$ _____   **23.** $80 \div 4 =$ _____   **24.** $4,900 \div 7 =$ _____

25. $6\overline{)420}$ **26.** $7\overline{)560}$ **27.** $9\overline{)2700}$

28. $5\overline{)250}$ **29.** $4\overline{)320}$ **30.** $3\overline{)21,000}$

31. Mental Math Explain how to find $240 \div 4$ using mental math.

_____

32. Mr. Doyle's class is collecting canned goods. Last year the school record was 550 cans. This year the class goal is to collect 600 cans. There are 3 collection sites. What should the goal be at each collection site if they plan to collect the same amount at all 3?

_____

Test Prep Choose the correct letter for each answer.

33. There are 40 books in a stack. The teacher wants to divide the books equally between 2 students. How many books will each student receive?

    A 2   **B** 20   **C** 10   **D** 80   **E** NH

34. A new coat costs $100. Stan plans to save for 5 months. How much will he have to save each month to buy the coat?

    F $50   **G** $5   **H** $2   **J** $20   **K** NH

Subtracting Greater Numbers

Example

Find $56{,}739 - 38{,}941$.

Subtract each column. Regroup as necessary.

Step 1	**Step 2**	**Step 3**	**Step 4**	**Step 5**
Subtract ones.	Subtract tens.	Subtract hundreds.	Subtract thousands.	Subtract ten thousands.

		16	1516	1516
	613	5 613	45 613	45 613
56,739	56,739	56,739	56,739	56,739
− 38,941	− 38,941	− 38,941	− 38,941	− 38,941
8	**9**8	**7**98	**7**,798	**1**7,798

Check by adding: 56,739   17,798
                  − 38,941   + 38,941
                   17,798   56,739

You can also check by estimating: $60{,}000 - 40{,}000 = 20{,}000$.
The answer is reasonable because 17,798 is close to 20,000.

---

1.   8,156
    − 5,948

2.   14,951
    − 8,965

3.   25,049
    − 12,651

4.   30,675
    − 21,599

5. $261.05
    − 95.14

6. $745.16
    − 394.29

7. $809.47
    − 152.68

8.   68,714
    − 59,856

9.   20,915
    − 14,876

10.   72,560
    − 43,695

11. $7{,}510 - 3{,}295$

12. $\$215.25 - \$94.66$

13. $60{,}581 - 12{,}692$

_____   _____   _____

Subtracting Greater Numbers (continued)

14.   7,811   **15.**   9,056   **16.**   19,819   **17.**   61,250   **18.** $719.50
         − 2,766   − 4,128   − 5,921   − 29,351   −   28.95

19. $621.18   **20.**   45,812   **21.**   90,432   **22.** $615.81   **23.**   52,506
         − 452.39   − 19,945   − 7,546   − 229.95   − 39,717

24. 8,152 − 965   **25.** $209.25 − $37.99   **26.** 83,054 − 39,175

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯   ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯   ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

27. Mental Math Find 1,500 − 499.   ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

28. Mental Math Find 8,000 − 7,999.   ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

29. At its greatest depth, the Atlantic Ocean is
9,219 meters deep, while the Indian Ocean is
7,455 meters deep and the Caribbean Sea is
6,946 meters deep. How much deeper is
the Indian Ocean than the Caribbean Sea?   ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Test Prep Choose the correct letter for each answer.

30. Find 63,125 − 18,368.

   A 44,757   **B** 45,257   **C** 44,253   **D** 55,243   **E** NH

31. At its greatest depth, the Mediterranean Sea is 4,632 meters
deep while the Gulf of Mexico is 3,787 meters deep. How
much deeper is the Mediterranean Sea?

   F 945 meters   **J** 1,115 meters

   G 845 meters   **K** NH

   H 1,845 meters

Decimals in Hundredths

Example

There are 100 squares in the grid at the right. What part of the grid is shaded?

The answer can be expressed in words, by using a fraction or a decimal.

Words: twenty-six hundredths
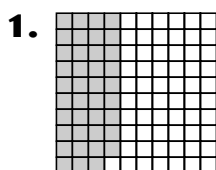
Fraction: $\frac{26}{100}$
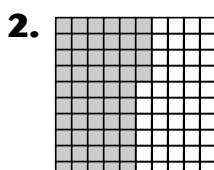
Decimal: 0.26
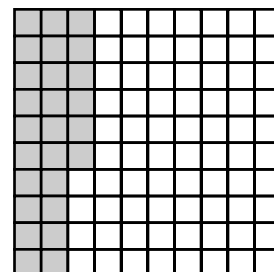
What part of the grid is not shaded?
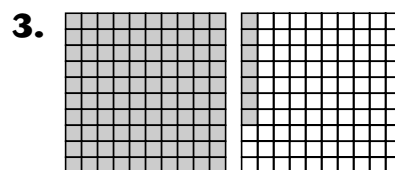
Words: seventy-four hundredths

Fraction: $\frac{74}{100}$

Decimal: 0.74

Write a fraction and a decimal for the shaded part.

1.

_____

2.

_____

3.

_____

Write each as a decimal.

4. $\frac{63}{100}$ **5.** $\frac{47}{100}$ **6.** $\frac{3}{100}$ **7.** $\frac{84}{100}$ **8.** $\frac{77}{100}$

_____   _____   _____   _____   _____

9. nineteen hundredths   **10.** seventy-one hundredths   **11.** thirty-five hundredths

_____   _____   _____

Decimals in Hundredths (continued)

Write each as a decimal.

12. $\frac{6}{100}$ **13.** $\frac{29}{100}$ **14.** $\frac{51}{100}$ **15.** $\frac{40}{100}$ **16.** $\frac{67}{100}$

_____ _____ _____ _____ _____

17. ninety-six hundredths **18.** one and eighty-eight hundredths **19.** two and one hundredth

_____ _____ _____

20. Mental Math Marco found $0.38 on Monday, $1.00 on Tuesday, and $0.75 on Wednesday. How much did he find on Monday and Tuesday? Express your answer using a dollar sign and a decimal point.

_____

Katie bought 100 plants for her garden. She bought 37 tomato plants, 8 cucumber plants, 12 pumpkin plants, and the rest of her plants were onions. Use this information in Questions 21–23.

21. Write a fraction and a decimal to express how many of the plants are tomatoes.

_____

22. How many of her plants are cucumbers and pumpkins? Express your answer as a decimal.

_____

23. Algebra Katie bought 57 plants that are not onions. How many of her plants are onions? What missing number makes $57 + \blacksquare = 100$ true? Then express your answer as a decimal.

_____

Test Prep Choose the correct letter for each answer.

24. What is the value of the 7 in 4.07?

   A 7 hundredths **B** 7 dollars **C** 7 tenths **D** 7 halves

25. Brandon has 100 sports cards. 62 are baseball cards. What part of his cards are baseball cards?
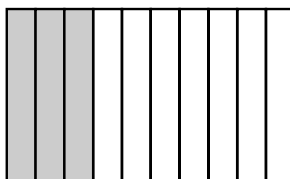
   F 0.43 **G** 0.75 **H** 0.50 **J** 0.62

Name _____

Decimals in Tenths

Example 1

What part of the shape
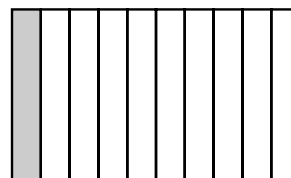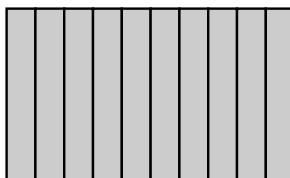is shaded?

The answer may be expressed in different ways.

Fraction: $\frac{3}{10}$

Decimal: 0.3

Words: three tenths

Example 2

What part of the shapes
are shaded?

One whole shape is shaded and one tenth of the other one.
One and one tenth is shaded. It can be written $1\frac{1}{10}$ or 1.1.

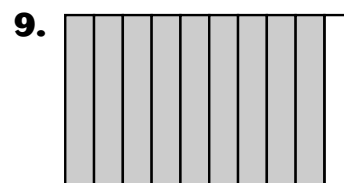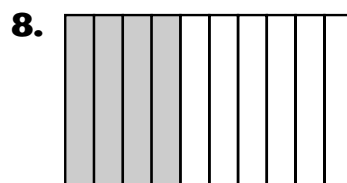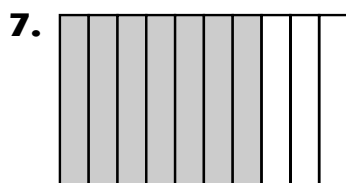Write each as a decimal.

1. $\frac{2}{10}$ _____

2. $\frac{7}{10}$ _____

3. $\frac{5}{10}$ _____

4. one tenth

5. nine tenths

6. six tenths

_____

_____

_____

Write a fraction and a decimal for each shaded part.

7.

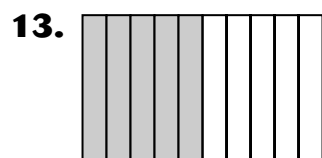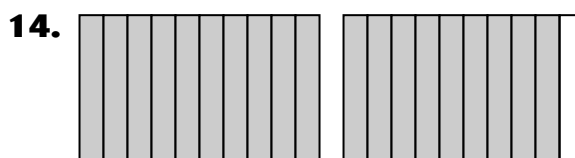**8.**

9.

_____

_____

_____

Name _____

Decimals in Tenths (continued)

Write each as a fraction and a decimal.

10. eight tenths

11. one and seven tenths

12. six and nine tenths

_____   _____   _____

Write a fraction and a decimal for each shaded part.

13.

14.

_____   _____

The picture at the right shows the books Jason read in September.
Use the picture for Exercises 15 and 16.

15. Write a fraction and a decimal to
describe the fiction books Jason read. _____

16. Write a fraction and a decimal to
describe the nonfiction books Jason read. _____

17. In October Jason read another ten books.
Only two were nonfiction. Express the
nonfiction books he read in October as a decimal. _____

18. Algebra How many fiction books did Jason read in October?
What missing number makes $2 + \blacksquare = 10$ true?
Then express your answer as a fraction and a decimal.

_____
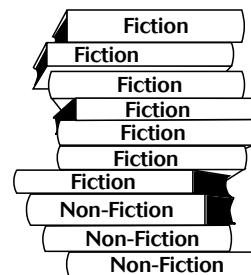
Test Prep Choose the correct letter for each answer.

19. How is six and five tenths expressed as a decimal?

A 6.510   **B** 6.05   **C** 6.5   **D** 5.6

20. Juan had $10. He spent $7. Which fraction shows the
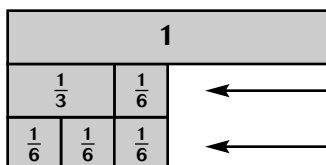amount of his money he spent?

F $\frac{3}{10}$ **G** $\frac{3}{7}$ **H** $\frac{10}{7}$ **J** $\frac{7}{10}$

Adding and Subtracting Fractions with Unlike Denominators

Example

Find $\dfrac{1}{3} + \dfrac{1}{6}$.

1	
$\frac{1}{3}$	$\frac{1}{6}$
$\frac{1}{6}$ $\frac{1}{6}$	$\frac{1}{6}$

← — The denominators are different.

← — Use fraction strips to find equivalent fractions with the same denominators.

$\dfrac{2}{6} + \dfrac{1}{6} = \dfrac{3}{6}$

Find each sum or difference. You may use fraction strips to help.

1. $\dfrac{2}{3} + \dfrac{1}{6} = $ _____

2. $\dfrac{1}{5} + \dfrac{3}{10} = $ _____

3. $\dfrac{3}{8} + \dfrac{2}{4} = $ _____

4. $\dfrac{5}{6} - \dfrac{2}{3} = $ _____

5. $\dfrac{3}{5} - \dfrac{1}{10} = $ _____

6. $\dfrac{3}{4} - \dfrac{1}{2} = $ _____

7. $\dfrac{3}{4} + \dfrac{2}{8} = $ _____

8. $\dfrac{1}{2} - \dfrac{1}{4} = $ _____

9. $\dfrac{1}{6} + \dfrac{5}{12} = $ _____

10. $\dfrac{1}{8} + \dfrac{1}{2} = $ _____

11. $\dfrac{2}{3} - \dfrac{2}{12} = $ _____

12. $\dfrac{1}{2} - \dfrac{2}{4} = $ _____

13. $\dfrac{3}{4} - \dfrac{3}{8} = $ _____

14. $\dfrac{1}{4} + \dfrac{4}{8} = $ _____

15. $\dfrac{2}{3} + \dfrac{2}{6} = $ _____

Name⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Adding and Subtracting Fractions with Unlike Denominators (continued)

Find each sum or difference. You may use fraction strips to help.

16. $\dfrac{3}{4} - \dfrac{1}{8} =$ _____   **17.** $\dfrac{2}{6} + \dfrac{1}{3} =$ _____   **18.** $\dfrac{4}{5} - \dfrac{2}{10} =$ _____

19. $\dfrac{2}{4} + \dfrac{1}{8} =$ _____   **20.** $\dfrac{4}{6} - \dfrac{3}{12} =$ _____   **21.** $\dfrac{7}{8} - \dfrac{1}{2} =$ _____

22. $\dfrac{3}{4} - \dfrac{2}{8} =$ _____   **23.** $\dfrac{4}{6} - \dfrac{1}{3} =$ _____   **24.** $\dfrac{3}{8} + \dfrac{1}{2} =$ _____

25. Math Reasoning Find 3 fractions that are equivalent to $\dfrac{1}{2}$.

_____

26. Renee watched $\dfrac{2}{3}$ of the movie and Timothy watched $\dfrac{3}{6}$ of
the movie. How much more did Renee watch than Timothy?   _____

27. A jar is filled with red, blue, and green marbles. Half of
the marbles are red. One-third of the marbles are blue.
One-sixth of the marbles are green. What fraction of the
marbles are either red or blue?   _____

Test Prep Choose the correct letter for each answer.

28. Find $\dfrac{5}{6} - \dfrac{1}{12}$.

A $\dfrac{4}{6}$ **B** $\dfrac{9}{12}$ **C** $\dfrac{4}{12}$ **D** $\dfrac{3}{6}$

29. Rick and Laura are painting a fence. Rick has painted $\dfrac{3}{8}$ of
the fence and Laura has painted $\dfrac{1}{4}$. How much of the fence
have Laura and Rick painted?

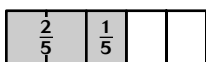**F** $\dfrac{0}{8}$ **G** $\dfrac{3}{4}$ **H** $\dfrac{3}{6}$ **J** $\dfrac{5}{8}$

Adding and Subtracting Fractions with Like Denominators

Example
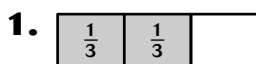
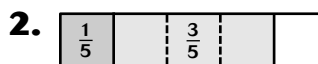Find $\frac{2}{5} + \frac{1}{5}$.

| $\frac{2}{5}$ | $\frac{1}{5}$ | | |

$\frac{2}{5} + \frac{1}{5} = \frac{3}{5}$ ⟵ add the numerators
⟵ use the same denominator

Find each sum or difference. You may use fraction strips to help.
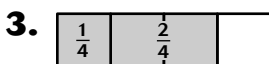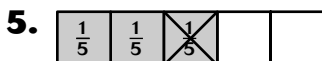
1.

| $\frac{1}{3}$ | $\frac{1}{3}$ | |

$\frac{1}{3} + \frac{1}{3} =$ _____

2.

| $\frac{1}{5}$ | $\frac{3}{5}$ | |

$\frac{1}{5} + \frac{3}{5} =$ _____

3.

| $\frac{1}{4}$ | $\frac{2}{4}$ | |

$\frac{1}{4} + \frac{2}{4} =$ _____

4.

| $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ |

$\frac{5}{6} - \frac{3}{6} =$ _____

5.

| $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | | |

$\frac{3}{5} - \frac{1}{5} =$ _____

6.
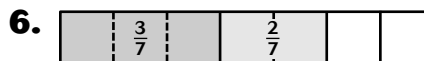
| $\frac{3}{7}$ | $\frac{2}{7}$ | | |

$\frac{3}{7} + \frac{2}{7} =$ _____

Name_____

Adding and Subtracting Fractions with Like Denominators (continued)

Find each sum or difference. You may use fraction
strips to help. (See page 39.)

7.

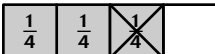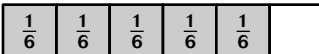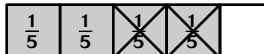| $\frac{1}{4}$ | $\frac{1}{4}$ | $\boxtimes\frac{1}{4}$ | |

$$\frac{3}{4} - \frac{1}{4} = \underline{\hspace{1cm}}$$

8.

| $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | |

$$\frac{2}{6} + \frac{3}{6} = \underline{\hspace{1cm}}$$

9.

| $\frac{1}{5}$ | $\frac{1}{5}$ | $\boxtimes\frac{1}{5}$ | $\boxtimes\frac{1}{5}$ | |

$$\frac{4}{5} - \frac{2}{5} = \underline{\hspace{1cm}}$$

10. $\frac{2}{8} + \frac{5}{8} = \underline{\hspace{1cm}}$

11. $\frac{4}{7} - \frac{3}{7} = \underline{\hspace{1cm}}$

12. $\frac{7}{8} - \frac{1}{8} = \underline{\hspace{1cm}}$

13. Algebra What fraction would you add to $\frac{1}{3}$ to get $\frac{3}{3}$? _____

14. Calvin bought a gallon of ice cream. He ate $\frac{1}{6}$ of it the
first day and he ate $\frac{2}{6}$ of it the second day. What fraction
of the ice cream did he eat? _____

15. Three-fifths of Mr. James' class are wearing blue jeans
and white shirts. One-fifth of the students are wearing
blue jeans and red shirts. One-fifth are wearing brown
pants and white shirts. What fraction of Mr. James' class
are wearing white shirts? _____

Test Prep Choose the correct letter for each answer.

16. Find $\frac{5}{6} - \frac{1}{6}$.

A $\frac{6}{6}$ **B** $\frac{5}{6}$ **C** $\frac{4}{6}$ **D** $\frac{6}{4}$

17. Bill has $\frac{1}{4}$ of a bag of pretzels and Phillip has $\frac{2}{4}$ of a bag.
What fraction of a bag of pretzels do they have together?

F $\frac{2}{8}$ **G** $\frac{3}{4}$ **H** $\frac{1}{4}$ **J** $\frac{4}{3}$

Mental Math: Division Patterns

Example

Find $1{,}500 \div 5$.

$15 \div 5 = 3$
$150 \div 5 = 30$
$1{,}500 \div 5 = 300$

So, $1{,}500 \div 5 = 300$.

---

1. $36 \div 6 = \underline{\hspace{1cm}}$

$360 \div 6 = \underline{\hspace{1cm}}$

$3{,}600 \div 6 = \underline{\hspace{1cm}}$

2. $28 \div 7 = \underline{\hspace{1cm}}$

$280 \div 7 = \underline{\hspace{1cm}}$

$2{,}800 \div 7 = \underline{\hspace{1cm}}$

3. $16 \div 2 = \underline{\hspace{1cm}}$

$160 \div 2 = \underline{\hspace{1cm}}$

$1{,}600 \div 2 = \underline{\hspace{1cm}}$

4. $45 \div 9 = \underline{\hspace{1cm}}$

$450 \div 9 = \underline{\hspace{1cm}}$

$4{,}500 \div 9 = \underline{\hspace{1cm}}$

5. $21 \div 7 = \underline{\hspace{1cm}}$

$210 \div 7 = \underline{\hspace{1cm}}$

$2{,}100 \div 7 = \underline{\hspace{1cm}}$

6. $64 \div 8 = \underline{\hspace{1cm}}$

$640 \div 8 = \underline{\hspace{1cm}}$

$6{,}400 \div 8 = \underline{\hspace{1cm}}$

7. $36 \div 4 = \underline{\hspace{1cm}}$

$360 \div 4 = \underline{\hspace{1cm}}$

$3{,}600 \div 4 = \underline{\hspace{1cm}}$

8. $18 \div 6 = \underline{\hspace{1cm}}$

$180 \div 6 = \underline{\hspace{1cm}}$

$1{,}800 \div 6 = \underline{\hspace{1cm}}$

9. $42 \div 7 = \underline{\hspace{1cm}}$

$420 \div 7 = \underline{\hspace{1cm}}$

$4{,}200 \div 7 = \underline{\hspace{1cm}}$

10. $54 \div 6 = \underline{\hspace{1cm}}$

$540 \div 6 = \underline{\hspace{1cm}}$

$5{,}400 \div 6 = \underline{\hspace{1cm}}$

11. $72 \div 8 = \underline{\hspace{1cm}}$

$720 \div 8 = \underline{\hspace{1cm}}$

$7{,}200 \div 8 = \underline{\hspace{1cm}}$

12. $30 \div 6 = \underline{\hspace{1cm}}$

$300 \div 6 = \underline{\hspace{1cm}}$

$3{,}000 \div 6 = \underline{\hspace{1cm}}$

Mental Math: Division Patterns (continued)

13. $60 \div 2 =$ _____   **14.** $150 \div 3 =$ _____   **15.** $200 \div 5 =$ _____

16. $810 \div 9 =$ _____   **17.** $350 \div 7 =$ _____   **18.** $2,100 \div 7 =$ _____

19. $1,400 \div 2 =$ _____   **20.** $80 \div 4 =$ _____   **21.** $4,900 \div 7 =$ _____

22. $6\overline{)420}$ **23.** $7\overline{)560}$ **24.** $9\overline{)2,700}$

25. $5\overline{)250}$ **26.** $4\overline{)320}$ **27.** $3\overline{)2,100}$

28. Mental Math Explain how to find $240 \div 4$ using mental math.

_____

29. There are 60 books in a stack. The teacher wants to divide the books equally between 3 classes. There are 20 students in each class. How many books will each class receive?   _____

Test Prep Choose the correct letter for each answer.

30. Find $27,000 \div 9$.

   A 30   **B** 300   **C** 3,000   **D** 30,000   **E** NH

31. A new coat costs $100. Stan receives $10 each week and he saves $5. How long will it take Stan to save enough money to buy the coat?

   F 10 weeks   **G** 20 weeks   **H** 2 weeks   **J** 5 weeks   **K** NH

Volume

Example
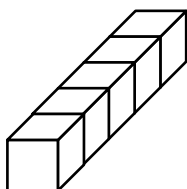
Find the volume of the figure.

The *volume* is the number of cubic units needed to fill the space in the figure.

You can see that the front row has 8 cubes, and there are 3 of these rows. The number of cubes is 8 + 8 + 8 = 24 cubes. So, the volume of the figure is 24 cubic units.
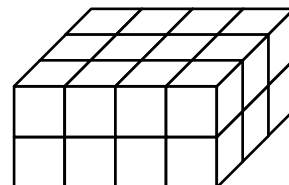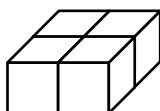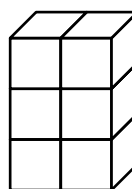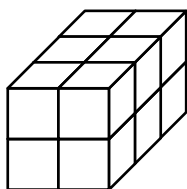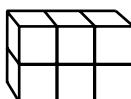
Find the volume of the figure.

1.

_____

_____

2.

_____

_____

3.

_____

_____

4.

_____

_____

5.

_____

_____

6.

_____

_____
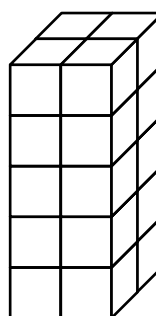
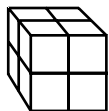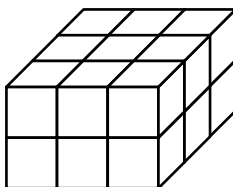Name

Volume (continued)

Find the volume of the figure.

7.

8.

9.

_____

_____
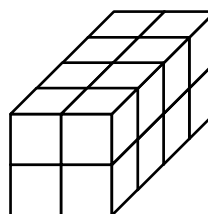
10.
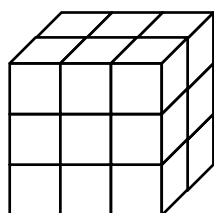
11.

12.

_____

_____

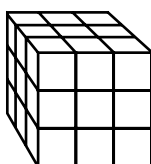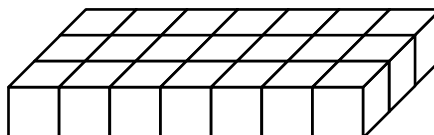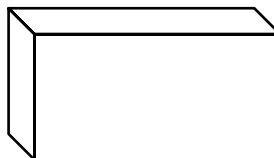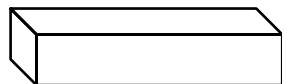**13. Math Reasoning** Which of the boxes below will hold a
larger volume? Explain.

_____

_____
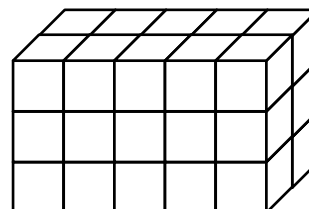
Test Prep Choose the correct letter for the answer.

14. What is the volume of this figure?
- **A** 15 square units
- **B** 20 square units
- **C** 30 square units
- **D** 45 square units

Expressions with Multiplication

Example 1

Give three numbers that make the statement true.

Statement: 6 × ● is greater than 22.

Use a table. You know that 6 × 3 = 18 and 6 × 4 = 24.
So, 6 × 3 is less than 22 and 6 × 4 is greater than 22.

Three numbers that make the statement true are 4, 5, and 6.

6 × 0 =	0
6 × 1 =	6
6 × 2 =	12
6 × 3 =	18
6 × 4 =	24

Example 2

Give three numbers that make the statement true.

Statement: 8 × ● is less than 60.

Use a table. You know that 8 × 7 = 56 and 8 × 8 = 64.
So 8 × 8 is greater than 60 and 8 × 7 is less than 60.

Three numbers that make the statement true are 7, 6, and 5.

8 × 0 =	0
8 × 1 =	8
8 × 2 =	16
8 × 3 =	24
8 × 4 =	32
8 × 5 =	40
8 × 6 =	48
8 × 7 =	56
8 × 8 =	64

Give three numbers that make each statement true.

1. 3 × ● is greater than 20.

2. 7 × ● is less than 44.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

3. 8 × ● is between 11 and 45.

4. 9 × ● is greater than 27.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

List all the numbers that make each statement true.

5. 4 × ● is less than 18.

6. 2 × ● is less than 3.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Expressions with Multiplication (continued)

Give three numbers that make each statement true.

7. $10 \times \bullet$ is greater than 31.

8. $3 \times \bullet$ is less than 12.

_____

_____

9. $9 \times \bullet$ is between 17 and 48.

10. $6 \times \bullet$ is less than 34.

_____

_____

11. $5 \times \bullet$ is greater than 30.

12. $2 \times \bullet$ is between 7 and 15.

_____

_____

List all the numbers that make each statement true.

13. $8 \times \bullet$ is less than 40.

14. $7 \times \bullet$ is less than 26.

_____

_____

15. One cookie costs 5¢. If Lori spends between 12¢ and 32¢, how many cookies could she buy?

_____

16. Math Reasoning What numbers make 0×10 is less than $\bullet$ true?

_____

Test Prep Choose the correct letter for each answer.

Which numbers make each statement true?

17. $4 \times \bullet$ is greater than 19.

A 2, 4, 6   **C** 5, 6, 7

B 3, 4, 5   **D** 4, 5, 6

18. $8 \times \bullet$ is less than 54.

F 7, 6, 5   **H** 8, 7, 6

G 6, 5, 4   **J** 8, 6, 4

Expressions with Addition and Subtraction

Example 1

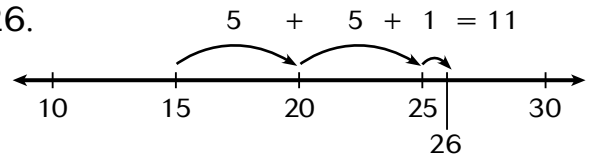Give three numbers that make the statement true.

Statement: $15 + \bullet$ is greater than 26.

Use a number line. Start at 15. Count to 26.

You know that $15 + 11$ is 26.

So, $15 + 12$ must be greater than 26.

$$5 \quad + \quad 5 + 1 \ = 11$$

Three numbers that make the statement true are 12, 13, and 14.
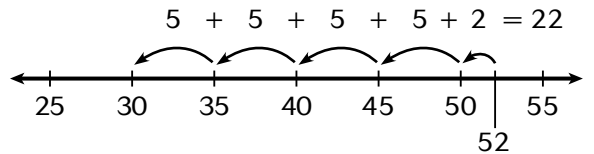
Example 2

Give three numbers that make the statement true.

Statement: $52 - \bullet$ is less than 30.

Use a number line. Start at 52. Count back to 30. You know that $52 - 22$ is 30.

So, $52 - 23$ must be less than 30.

$$5 + 5 + 5 + 5 + 2 = 22$$

Three numbers that make the statement true are 23, 24, and 25.

Give three numbers that make each statement true.

1. $12 + \bullet$ is greater than 19.

_____

_____

2. $12 + \bullet$ is less than 19.

_____

_____

3. $36 - \bullet$ is less than 10.

_____

_____

4. $36 - \bullet$ is greater than 10.

_____

_____

List all the numbers that make each statement true.

5. $64 - \bullet$ is greater than 60.

_____

6. $35 + \bullet$ is less than 43.

_____

Expressions with Addition and Subtraction (continued)

Give three numbers that make each statement true.

7. 14 + ● is greater than 22.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

8. 14 + ● is less than 22.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

9. 48 − ● is less than 35.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

10. 48 − ● is greater than 35.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

11. 40 − ● is greater than 25.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

12. 40 − ● is between 5 and 25.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

List all the numbers that make each statement true.

13. 37 + ● is less than 42.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

14. 21 − ● is greater than 15.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

15. The missing length is between 2 centimeters and 5 centimeters. What is one possibility for this length?

cm   5 cm

2 cm
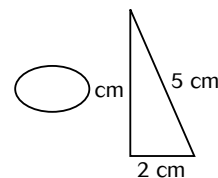
Test Prep Choose the correct letter for the answer.

16. Which numbers make the statement true?
16 + ● is greater than 24.

A 7, 8, 9

B 8, 9, 10

C 9, 10, 11

D 8, 10, 12

Solid Shapes and Plane Shapes

Example

Circle the plane shape you would make by tracing around the flat bottom of each solid shape.

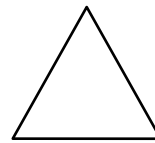Remember what you know about drawing around a solid shape on paper.
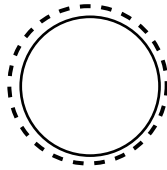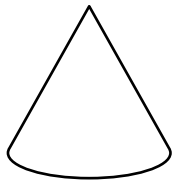
1.
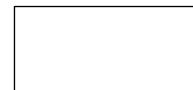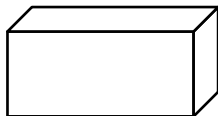
2.
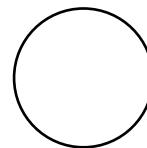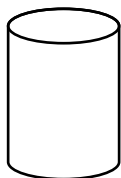
3.
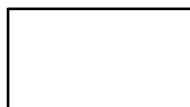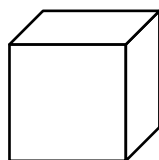
Name_____

Solid Shapes and Plane Shapes (continued)
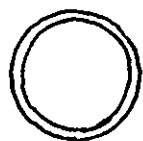
Watch as the circle changes shape.
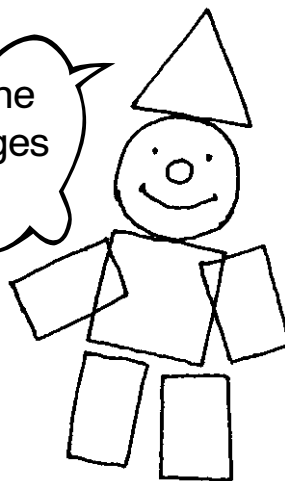
Circle the solid shape you could use to draw each plane shape.
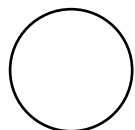
4. circle
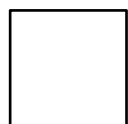
5. square
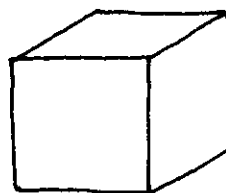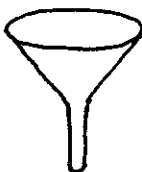
6. rectangle
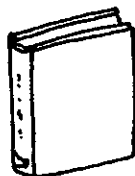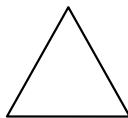
7. triangle
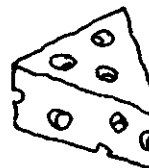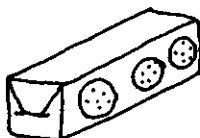
8. rectangle
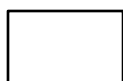
Adding and Subtracting Money

Example

You can buy these blocks.

$1.15 $2.36 $1.78 $1.05 $1.81 $1.67
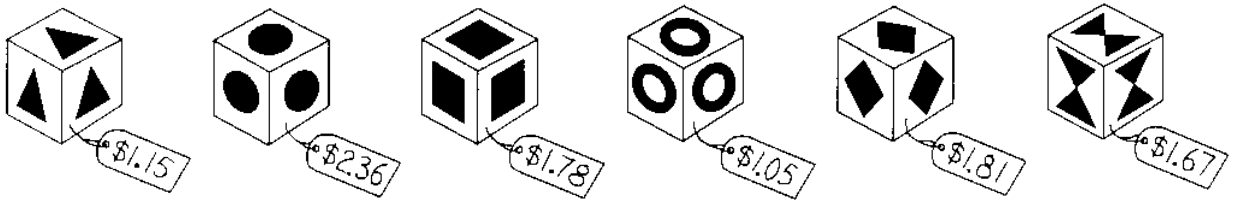
Find the cost for each set of 2 blocks.
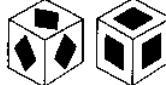
$ 1.15	$ 1.81	$2.36
+ 1.78	+ 1.67	+ 1.05
$2.93	$3.48	$3.41

Find the cost of the two blocks. Then find how much you have left after you buy them.

1. You have $6.45.

$ _____ $ _____
+ _____   − _____
$ _____ $ _____

2. You have $5.04.

$ _____ $ _____
+ _____   − _____
$ _____ $ _____

3. You have $5.17.

$ _____ $ _____
+ _____   − _____
$ _____ $ _____

Name_____

Adding and Subtracting Money (continued)

Add.
$1.29 + $2.33

Subtract.
$2.83 − $0.79

```
     ¦
  $ 1.29
  +  2.33
  $ 3.62
```

Make sure you put the cents point in your answer.

```
   7 13
  $ 2.83
  −  0.79
  $ 2.04
```

Add or subtract.

4.	5.	6.	7.
$ 2.92 + 0.74	$ 2.78 + 0.94	$ 0.99 + 2.49	$ 5.70 − 1.35

8.	9.	10.	11.
$ 2.30 + 1.95	$ 7.15 − 5.09	$ 4.84 − 1.36	$ 6.65 + 3.25

12.	13.	14.	15.
$ 8.42 − 2.08	$ 9.11 + 0.09	$ 5.03 + 3.58	$ 6.45 − 1.26

16.	17.	18.	19.
$ 3.58 + 0.29	$ 7.40 − 1.26	$ 5.68 + 0.90	$ 4.41 − 4.17

Another Look

Evaluating Expressions

Order of Operations
1. Compute inside parentheses first.
2. Do all multiplications and divisions next, left to right.
3. Do all additions and subtractions last, left to right.

Following the order of operations ensures that you
get one value for an expression.

Example:

$$570 \div (12 - 2) \times 3 + 4 = 570 \div 10 \times 3 + 4 \quad \text{Work inside}$$
parentheses first.

$$= \quad 57 \quad \times 3 + 4 \quad \text{Multiply and divide next.}$$
$$= \quad 171 \quad + 4 \quad \text{Add and subtract last.}$$
$$= 175$$

Evaluate each expression. Do the operation in dark type
first. Decide which answer is correct. Explain.

1. $5 \times 6 - 3 =$ _____ Correct? _____

$5 \times 6 - 3 =$ _____ Correct? _____

Explain. _____

_____

2. $100 \div 2 \times 5 =$ _____ Correct? _____

$100 \div 2 \times 5 =$ _____ Correct? _____

Explain. _____

_____

3. $(6 + 2) \times 5 - 1 =$ _____ Correct? _____

$(6 + 2) \times 5 - 1 =$ _____ Correct? _____

Explain. _____

_____

Name _____

Adding and Subtracting with Like Denominators

Add or subtract. Write each number in simplest form.

1. $\dfrac{12}{19}$
$+\ \dfrac{4}{19}$
_____

2. $\dfrac{17}{30}$
$-\ \dfrac{7}{30}$
_____

3. $\dfrac{7}{12}$
$+\ \dfrac{5}{12}$
_____

4. $\dfrac{7}{8}$
$-\ \dfrac{1}{8}$
_____

5. $\dfrac{8}{9}$
$-\ \dfrac{2}{9}$
_____

6. $\dfrac{5}{7}$
$+\ \dfrac{4}{7}$
_____

7. $\dfrac{13}{25}$
$-\ \dfrac{8}{25}$
_____

8. $\dfrac{7}{16}$
$+\ \dfrac{9}{16}$
_____

9. $9\dfrac{1}{10}$
$+\ 3\dfrac{6}{10}$
_____

10. $7\dfrac{3}{16}$
$-\ 2\dfrac{8}{16}$
_____

11. $2\dfrac{5}{12}$
$+\ 1\dfrac{11}{12}$
_____

12. $3\dfrac{1}{4}$
$-\ 1\dfrac{3}{4}$
_____

13. $4\dfrac{1}{5}$
$-\ 3\dfrac{3}{5}$
_____

14. $14\dfrac{9}{10}$
$+\ 10\dfrac{4}{10}$
_____

15. 9
$-\ 7\dfrac{8}{11}$
_____

16. $22\dfrac{7}{12}$
$-\ 15\dfrac{8}{12}$
_____

17. Brooke walked $1\dfrac{4}{9}$ miles to the library to return some books. She then walked another $\dfrac{7}{9}$ mile to her grandmother's house. How far did Brooke walk altogether?

_____

Test Prep   Circle the correct letter for the answer.

18. Julio is riding his bicycle to Anna's house $5\dfrac{1}{8}$ miles away. He has $1\dfrac{5}{8}$ miles left to go. How many miles has Julio biked so far?

A $3\dfrac{5}{8}$ 　　　　　　**B** $3\dfrac{1}{4}$ 　　　　　　**C** $4\dfrac{1}{8}$ 　　　　　　**D** $3\dfrac{1}{2}$

Name _____

Subtracting Fractions and Mixed Numbers: Like Denominators

Subtract. Write each answer in simplest form.

1. $\frac{5}{9} - \frac{3}{9}$

_____

2. $\frac{4}{6} - \frac{2}{6}$

_____

3. $\frac{7}{8} - \frac{6}{8}$

_____

4. $1\frac{4}{5} - 1$

_____

5. $\frac{9}{10} - \frac{5}{10}$

_____

6. $3\frac{1}{8} - 2\frac{3}{8}$

_____

7. $2\frac{1}{3} - 1\frac{2}{3}$

_____

8. $\frac{3}{9} - \frac{2}{9}$

_____

9. $\frac{6}{10} - \frac{1}{10}$

_____

10. $2\frac{4}{8} - \frac{6}{8}$

_____

11. $5\frac{1}{4} - \frac{3}{4}$

_____

12. $5\frac{1}{8} - 2\frac{5}{8}$

_____

13. $\begin{array}{r} \frac{2}{5} \\ -\frac{1}{5} \\ \hline \end{array}$

14. $\begin{array}{r} 3\frac{4}{10} \\ -\frac{7}{10} \\ \hline \end{array}$

15. $\begin{array}{r} 4\frac{7}{12} \\ -\frac{7}{12} \\ \hline \end{array}$

16. $\begin{array}{r} \frac{4}{12} \\ -\frac{3}{12} \\ \hline \end{array}$

17. Jenna had $\frac{7}{12}$ of a dozen eggs in the refrigerator.
She used $\frac{5}{12}$ of a dozen eggs for a recipe. How many
eggs were left after she used the eggs for her recipe?   _____

Test Prep Circle the correct letter for each answer.

18. After a class picnic, Mitchica wrapped up $4\frac{2}{8}$ leftover pizzas. For dinner, she
and her brother ate $1\frac{6}{8}$ pizza. How many pizzas were left after their dinner?

A $3\frac{1}{8}$ **B** $1\frac{6}{8}$ **C** $2\frac{1}{2}$ **D** $3\frac{1}{2}$

19. Alma's bakery made $6\frac{6}{12}$ dozen blueberry muffins. They spread frosting on $3\frac{9}{12}$
dozen. How many muffins were not frosted?

F $3\frac{3}{4}$ dozen   **G** $3\frac{1}{2}$ dozen   **H** $2\frac{1}{2}$ dozen   **J** $2\frac{3}{4}$ dozen

Adding Fractions and Mixed Numbers: Like Denominators

Add. Write each answer in simplest form.

1. $\frac{3}{10} + \frac{6}{10} =$ _____

2. $\frac{3}{8} + \frac{5}{8} =$ _____

3. $\frac{3}{8} + 1\frac{1}{8} =$ _____

4. $\frac{7}{9} + 1\frac{1}{9} =$ _____

5. $\frac{1}{6} + \frac{3}{6} =$ _____

6. $\frac{7}{10} + \frac{1}{10} =$ _____

7. $2\frac{1}{3} + 1\frac{2}{3} =$ _____

8. $\frac{3}{9} + \frac{2}{9} =$ _____

9. $\frac{2}{6} + \frac{5}{6} =$ _____

10. $\frac{4}{8} + \frac{6}{8} =$ _____

11. $1\frac{3}{4} + 3\frac{3}{4} =$ _____

12. $5\frac{7}{8} + 2\frac{5}{8} =$ _____

13.
$$\begin{array}{r} \frac{2}{5} \\ + \frac{1}{5} \\ \hline \end{array}$$

14.
$$\begin{array}{r} \frac{4}{10} \\ + \frac{9}{10} \\ \hline \end{array}$$

15.
$$\begin{array}{r} \frac{7}{12} \\ + \frac{7}{12} \\ \hline \end{array}$$

16.
$$\begin{array}{r} 1\frac{11}{12} \\ + 3\frac{7}{12} \\ \hline \end{array}$$

17.
$$\begin{array}{r} 3\frac{3}{5} \\ + 5\frac{3}{5} \\ \hline \end{array}$$

18.
$$\begin{array}{r} 4\frac{6}{8} \\ + 1\frac{3}{8} \\ \hline \end{array}$$

19.
$$\begin{array}{r} 2\frac{1}{10} \\ + \frac{7}{10} \\ \hline \end{array}$$

20.
$$\begin{array}{r} \frac{3}{13} \\ + \frac{11}{13} \\ \hline \end{array}$$

Test Prep Circle the correct letter for each answer.

21. Albert's family ordered an 8-slice pizza for dinner. Albert ate 2 slices for dinner. The next day, Albert ate 2 more slices for lunch. What fraction of the pizza did Albert eat?

A $\frac{2}{8}$ **B** $\frac{2}{4}$ **C** $\frac{1}{4}$ **D** $\frac{1}{2}$

22. Breakwater School has two newspapers, The Bugle and The Bulletin. The Bugle comes out on Tuesday and Friday. The Bulletin comes out on Thursday. On what fraction of the school week does a paper come out at Breakwater? (Hint: There is no school on Saturday or Sunday.)

F $\frac{2}{7}$ **G** $\frac{2}{5}$ **H** $\frac{1}{5}$ **J** $\frac{3}{5}$

Name _____

Relating Fractions and Decimals

Write a fraction and a decimal for each shaded part.

1.

_____

2.

_____

3.

_____

4.

_____

5.

_____

6.

_____
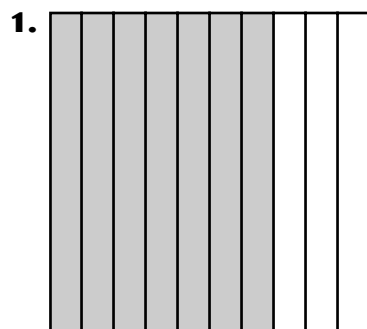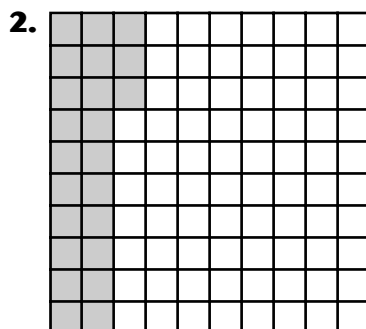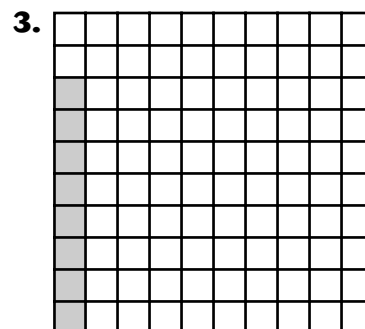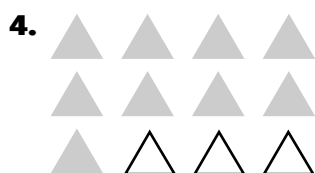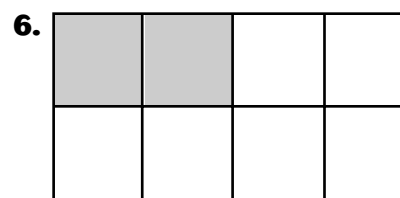
Write the following as a fraction and as a decimal.

7. 15 hundreths _____

8. 8 tenths _____

9. 20 hundreths _____

10. 79 hundreths _____

11.

_____

Test Prep Circle the correct letter for each answer.

12. There are 7 posters for the Talent Show. Five posters are on yellow poster board. The others are on white. What fraction of the posters are on white?

A $\frac{7}{2}$ **B** $\frac{2}{7}$ **C** $\frac{7}{5}$ **D** $\frac{2}{5}$

13. Sixty-five of the 100 chorus members are girls. Which is the decimal describing the part of the chorus made up of girls?

F 1.65   **G** 0.135   **H** 0.35   **J** 0.65

Name _____

Adding and Subtracting Greater Whole Numbers

1.   6,145
      + 2,942

2.   8,734
      + 1,237

3.   5,264
      − 2,147

4.   7,007
      − 3,362

5.   3,712
      − 1,809

6.   4,627
      + 2,843

7.   9,419
      + 4,865

8.   4,992
      − 1,763

9.   63,212
      − 14,388

10.   25,109
       − 19,222

11.   12,866
       + 29,745

12.   46,238
       + 40,702

13. 14,220 + 56,131   **14.** 41,028 − 26,525   **15.** 27,928 + 39,053

_____   _____   _____

16. Algebra Find the value of n if $n + 890 = 4,371.$ _____

17. 3,728 + 895 + 627 = _____   **18.** $34,620 − 5,746 = _____

19. 625 + 12,419 + 5,312 = _____   **20.** $70,612 − $15,850 = _____

Test Prep Circle the correct letter for the answer.

21. There are two National Battlefields in Tennessee. Fort Donelson has an area of 536 acres. Stones River measures 3,963 acres in area. How many acres of National Battlefields are in Tennessee?

    A 4,499 acres   **C** 4,433 acres

    B 4,600 acres   **D** 3,499 acres

Subtraction of Fractions

Write answers in simplest form.

1. $\dfrac{9}{11} - \dfrac{3}{11}$

2. $\dfrac{3}{5} - \dfrac{1}{5}$

3. $\dfrac{5}{7} - \dfrac{1}{7}$

4. $\dfrac{7}{10} - \dfrac{1}{10}$

_____   _____   _____   _____

5. $\begin{array}{r} \frac{4}{5} \\ -\frac{1}{5} \\ \hline \end{array}$

6. $\begin{array}{r} \frac{2}{3} \\ -\frac{1}{3} \\ \hline \end{array}$

7. $\begin{array}{r} \frac{3}{10} \\ -\frac{1}{10} \\ \hline \end{array}$

8. $\begin{array}{r} \frac{12}{15} \\ -\frac{8}{15} \\ \hline \end{array}$

9. $\begin{array}{r} \frac{5}{9} \\ -\frac{3}{9} \\ \hline \end{array}$

10. $\begin{array}{r} \frac{19}{20} \\ -\frac{17}{20} \\ \hline \end{array}$

11. $\begin{array}{r} \frac{6}{18} \\ -\frac{4}{18} \\ \hline \end{array}$

12. $\begin{array}{r} \frac{11}{12} \\ -\frac{4}{12} \\ \hline \end{array}$

13. Joy spread $\dfrac{7}{9}$ of a pound of plant food in her garden. Jackie spread $\dfrac{5}{9}$ of a pound of plant food. Who spread more plant food? How much more?

_____

Test Prep Circle the correct letter for each answer.

14. To subtract fractions, what needs to be the same?

   A numerators   **B** mixed numbers   **C** denominators   **D** quotients

15. Pavers covered $\dfrac{1}{3}$ of the playground with blacktop. How much of the playground remains grass?

   F $\dfrac{1}{4}$ **G** $\dfrac{1}{2}$ **H** $\dfrac{1}{3}$ **J** $\dfrac{2}{3}$

Problem-Solving Skill
Interpreting Remainders

Andrea has $62 to spend on gym clothes.
She wants to buy as many T-shirts as possible.
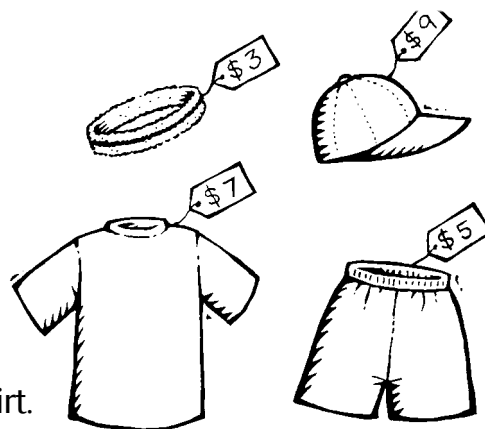
1. Which of the following statements is true?

    a. T-shirts cost more than caps.

    b. Andrea cannot afford to buy shorts.

    c. Andrea can afford to buy more than one T-shirt.

2. Which sentence could you use to find out how many
T-shirts Andrea can afford?

    a. 62 ÷ 7 = □   **b.** 62 ÷ 5 = □   **c.** 7 × 9 = □

3. How many T-shirts can Andrea afford to buy?

    a. 7 T-shirts   **b.** 8 T-shirts   **c.** 15 T-shirts

4. What could Andrea afford to buy with the money left over after
buying the T-shirts?

    a. One cap   **b.** Two sweatbands   **c.** One pair of shorts
and one sweatband

5. Andrea changes her mind and decides to buy as many shorts as
she can afford and use the remaining money to buy other gym clothes.
Which number sentence shows how many shorts she can afford?

    a. 62 ÷ 7 = 8 R6   **b.** 62 ÷ 5 = 12 R2   **c.** 62 ÷ 9 = 6 R8

6. What other clothes can Andrea afford after buying the shorts? _____

7. **Math Reasoning** If Andrea buys complete sets of gym clothes, how
many sets can she afford, and what can she buy with the remainder?

_____

_____

_____

Dividing Two-Digit Numbers

1. $6\overline{)78}$ **2.** $3\overline{)81}$ **3.** $7\overline{)77}$ **4.** $4\overline{)88}$

_____   _____   _____   _____

5. $63 \div 3$ **6.** $94 \div 2$ **7.** $4\overline{)84}$ **8.** $2\overline{)34}$

_____   _____   _____   _____

9. $60 \div 4$ **10.** $5\overline{)85}$ **11.** $87 \div 3$ **12.** $5\overline{)70}$

_____   _____   _____   _____

13. Dancers are placed in groups of 4 for a square dance. There are 56 dancers. How many groups of 4 can be made?

_____

14. The refreshment table includes cups of fruit punch. There are 84 cups of fruit punch in one bowl. Suppose each dancer drinks 3 cups of fruit punch. How many dancers can get punch from one bowl?

_____

15. Algebra Solve: $7x = 98$. Multiply to check. _____

Test Prep Circle the correct letter for each answer.

16. Sixty fourth-grade students sing in the school chorus. At performances they stand on risers. Each riser holds 5 students. How many risers are needed?

    A 4 risers   **C** 10 risers

    B 5 risers   **D** 12 risers

17. Jeff has 16 egg rolls. He divides them equally among his 3 friends and himself. How many egg rolls does each person get?

    F 2 egg rolls   **H** 4 egg rolls

    G 3 egg rolls   **J** 5 egg rolls

Mental Math: Dividing Multiples of 10, 100, and 1,000

1. 100 ÷ 5　　　　**2.** 280 ÷ 4　　　　**3.** 2,500 ÷ 5　　　　**4.** 2,100 ÷ 3

_____　　　_____　　　_____　　　_____

5. 8,000 ÷ 4　　　　**6.** 16,000 ÷ 8　　　**7.** 36,000 ÷ 6　　　**8.** 81,000 ÷ 9

_____　　　_____　　　_____　　　_____

Cookbooks are displayed in special cases, 6 to a case.
Use the table to solve Exercises 9 and 10.

9. How many cases are needed to display
the Indian and the Italian books?

_____

10. How many more cases are needed
to display the French books than the
English ones?

_____

Cookbooks	
Italian	120
French	1,800
English	300
Indian	240
Chinese	480

11. Algebra Find the value of $\dfrac{3{,}000}{n}$ when n is 5.

_____

12. Math Reasoning Write a multiplication sentence to check
the answer to 7,200 ÷ 8 = 900.

_____

Test Prep Circle the correct letter for each answer.

13. What is the answer to a division problem called?

　A Dividend　　　**B** Product　　　**C** Divisor　　　**D** Quotient

14. Julio will send 540 books to a neighboring library.
If each box contains nine books, how many boxes
will Julio need?

　F 30 boxes　　　**G** 60 boxes　　　**H** 40 boxes　　　**J** 50 boxes

Name _____

Problem-Solving Application
Using Money

Sean is going grocery shopping and will use coupons.

Sean's Shopping List
3 cans of soup
12 eggs
1 head lettuce
bag of apples
1 box cat food
1 gallon milk
1 box cereal

Specials		
Item	**Price**	**Coupon**
12 eggs	$2.49	24¢ off
soup	75¢/each	Buy 3 for $1.50.
lettuce	$1.12/head	19¢ off
bag of apples	$3.50	75¢ off
box of cereal	$3.75	90¢ off
cat food	$2.19	45¢ off
milk	$2.25/gallon	4¢ off

Use the tables above for Exercises 1−5.

1. Which costs more, the eggs with a coupon or the milk with a coupon?

_____

2. Which coupon gives the bigger discount, the coupon for cereal or the coupon

for apples? _____ Which costs less, cereal with a coupon or apples

with a coupon? _____

3. Which two coupons offer equal discounts? Explain.

_____

_____

4. How much money will Sean's coupons for apples, lettuce, eggs, and milk save?

_____

5. How much money in all will Sean spend at the store if he uses all of the coupons
and buys everything on his list?

_____

Decimals in Hundredths

Write each as a decimal.

1. $\frac{36}{100}$ _____   **2.** $\frac{78}{100}$ _____   **3.** $\frac{52}{100}$ _____   **4.** $\frac{10}{100}$ _____

5. $\frac{29}{100}$ _____   **6.** $\frac{41}{100}$ _____   **7.** $\frac{5}{100}$ _____   **8.** $\frac{13}{100}$ _____

What is the value of the digit 2 in each number.

9. 30.02   **10.** 7.29   **11.** 32.88   **12.** 36.21   **13.** 21.3

_____   _____   _____   _____   _____

14. There are 100 centimeters in 1 meter. Babs has a ribbon that is 100 centimeters and uses half of it in an art project. What part does she use? Give your answer as a fraction and a decimal.

_____

15. Paul bought an ice cream cone for 70 cents. He paid with a dollar bill. The store clerk gave him 40 cents change. Did Paul get the correct change? Explain.

_____

Test Prep   Circle the correct letter for each answer.

Joy and April have saved $6.82. They have 6 dollar bills, 4 dimes and 42 pennies. They divide the money equally between themselves.

16. Each girl will get 3 dollar bills. In addition what hundredths of a dollar will each girl receive?

   A 0.40

   B 4.0

   C 41

   D 0.41

17. How many more hundredths of a dollar do they have altogether in pennies than dimes?

   F 20

   G 0.20

   H 0.02

   J 0.22

Name _____

Decimals in Tenths

Write a fraction and a decimal for the shaded part.

1.

_____

2.

_____

3.

_____

Write each as a decimal.

4. three tenths

_____

5. six tenths

_____

6. eight tenths

_____

7. seven tenths

_____

8. one tenth

_____

9. four tenths

_____

10. $\frac{2}{10}$ _____

11. $\frac{5}{10}$ _____

12. $\frac{9}{10}$ _____

13. $\frac{7}{10}$ _____

14. $9\frac{2}{10}$ _____

15. $6\frac{5}{10}$ _____

16. Which picture shows four tenths?

a. | X | X | X | X | X | X | X | | | |

b. | X | X | X | X | | | | | | |
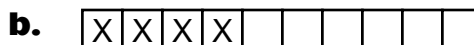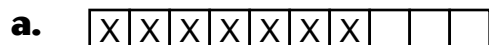
17. Draw a picture to show 0.3.

Test Prep Circle the correct letter for the answer.

18. There were 10 children waiting for the school bus. Six wore caps.
What fraction and decimal tells how many students did not wear caps?

A $\frac{3}{10}$ or 0.3

B $\frac{6}{10}$ or 0.6

C $\frac{4}{10}$ or 0.4

D $4\frac{4}{10}$ or 4.4

Adding and Subtracting Fractions with Like Denominators

Find each sum or difference. You may use fraction strips to help.

1. $\frac{3}{12} + \frac{2}{12} =$ _____   **2.** $\frac{1}{3} + \frac{1}{3} =$ _____   **3.** $\frac{8}{10} - \frac{3}{10} =$ _____

4. $\frac{6}{10} - \frac{3}{10} =$ _____   **5.** $\frac{4}{8} + \frac{2}{8} =$ _____   **6.** $\frac{2}{8} + \frac{5}{8} =$ _____

7. $\frac{3}{4} - \frac{2}{4} =$ _____   **8.** $\frac{4}{6} - \frac{3}{6} =$ _____   **9.** $\frac{2}{3} + \frac{1}{3} =$ _____

10. $\frac{1}{6} + \frac{3}{6} =$ _____   **11.** $\frac{2}{10} + \frac{4}{10} =$ _____   **12.** $\frac{9}{12} - \frac{3}{12} =$ _____

13. $\frac{2}{5} - \frac{1}{5} =$ _____   **14.** $\frac{3}{8} + \frac{2}{8} =$ _____   **15.** $\frac{6}{8} + \frac{0}{8} =$ _____

16. $\frac{3}{8} - \frac{2}{8} =$ _____   **17.** $\frac{8}{12} - \frac{5}{12} =$ _____   **18.** $\frac{2}{5} - \frac{2}{5} =$ _____

19. A pizza was cut into 8 equal slices. Jill ate 4 slices. What fraction of the pizza is left?

_____

20. There is $\frac{3}{4}$ of a gallon of milk in the container. The Swanson family drinks $\frac{2}{4}$ gallon of milk at dinner. What fraction of the gallon of milk is left?

_____

21. Marta runs $\frac{1}{8}$ of a mile in a relay race. She then hands the baton to Juana who runs $\frac{1}{8}$ of a mile. What fraction of a mile did both girls run? _____

Test Prep Circle the correct letter for the answer.

22. The hockey team played 15 games during the regular season. They played 5 games in the playoffs. In all their games they won 18 games. What fraction of their games did they win?

A $\frac{15}{18}$ games   **B** $\frac{10}{18}$ games   **C** $\frac{18}{20}$ games   **D** $\frac{5}{20}$ games

Comparing and Ordering Fractions

Algebra Compare. Write $<$, $>$, or $=$ in the ◯.

1.

$\frac{3}{4}$ ◯ $\frac{1}{4}$

2.

$\frac{3}{6}$ ◯ $\frac{4}{6}$

3.

$\frac{4}{6}$ ◯ $\frac{1}{2}$

4.
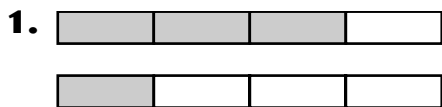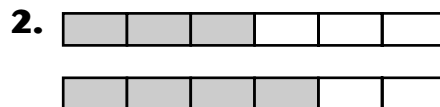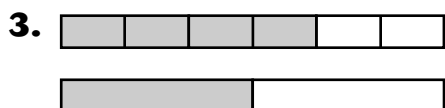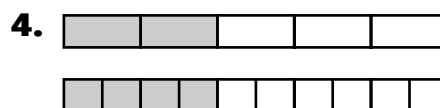
$\frac{2}{5}$ ◯ $\frac{4}{10}$

5. $\frac{1}{4}$ ◯ $\frac{1}{8}$

6. $\frac{3}{10}$ ◯ $\frac{9}{10}$

7. $\frac{1}{2}$ ◯ $\frac{7}{10}$

8. $\frac{1}{6}$ ◯ $\frac{1}{3}$

9. $\frac{5}{8}$ ◯ $\frac{3}{8}$

10. $\frac{7}{12}$ ◯ $\frac{1}{2}$

11. $\frac{4}{4}$ ◯ $\frac{3}{3}$

12. $\frac{1}{4}$ ◯ $\frac{4}{8}$

Arrange the fractions in order from least to greatest.

13. $\frac{3}{4}, \frac{3}{8}, \frac{1}{2}$

14. $\frac{2}{5}, \frac{3}{10}, \frac{7}{10}$

15. $\frac{1}{4}, \frac{1}{2}, \frac{1}{8}$

_____

_____

_____

16. **Math Reasoning** I am a fraction with a denominator of 4. I am greater than $\frac{1}{2}$, but less than 1. What fraction am I? _____

Test Prep Circle the correct letter for the answer.

17. There were 10 granola bars in a box. Anna ate 2 and Jon ate 4. Which number sentence tells you they ate more than half of the box?

A $\frac{2}{10} + \frac{4}{10} > \frac{5}{10}$

C $\frac{3}{10} + \frac{4}{10} > \frac{5}{10}$

B $\frac{4}{10} - \frac{2}{10} = \frac{2}{10}$

D none of the above

Dividing Two-Digit Numbers   I

1. 2)82   **2.** 3)69   **3.** 5)75   **4.** 6)90   **5.** 2)96

6. 3)93   **7.** 8)96   **8.** 3)87   **9.** 6)96   **10.** 2)86

11. 51 ÷ 3   **12.** 44 ÷ 4   **13.** 78 ÷ 3   **14.** 42 ÷ 6

_____   _____   _____   _____

Algebra Write > , <, or = for each ◯.

15. 80 ÷ 8 ◯ 30 ÷ 3   **16.** 30 ÷ 5 ◯ 300 ÷ 5

17. 90 ÷ 2 ◯ 90 ÷ 9   **18.** 40 ÷ 2 ◯ 80 ÷ 4

19. A car dealer has space for 7 cars in each row of his parking lot. If a new shipment of cars from the automobile plant contains 84 cars, about how many rows of parking space will the dealer need for those cars?

_____

Test Prep   Circle the correct letter for each answer.

There were 85 students, 8 parents, and 3 teachers going on a trip to the Nature Center. They took 4 small buses. Each bus could take 25 passengers.

20. If the passengers were divided equally among the buses, how many passengers went on each bus?

   A 20 passengers

   B 22 passengers

   C 24 passengers

   D 26 passengers

21. How many empty seats were there altogether on the four buses?

   F 4 seats

   G 5 seats

   H 6 seats

   J 7 seats

Mental Math: Division Patterns

1. $8\overline{)72}$ $8\overline{)720}$ $8\overline{)7,200}$ **2.** $6\overline{)18}$ $6\overline{)180}$ $6\overline{)1,800}$

3. $48 \div 8 =$ _____   **4.** $14 \div 7 =$ _____   **5.** $81 \div 9 =$ _____

$480 \div 8 =$ _____ $140 \div 7 =$ _____ $810 \div 9 =$ _____

$4,800 \div 8 =$ _____ $1,400 \div 7 =$ _____ $8,100 \div 9 =$ _____

6. $10 \div 5 =$ _____   **7.** $24 \div 4 =$ _____   **8.** $30 \div 10 =$ _____

$100 \div 5 =$ _____ $240 \div 4 =$ _____ $300 \div 10 =$ _____

$1,000 \div 5 =$ _____ $2,400 \div 4 =$ _____ $3,000 \div 10 =$ _____

9. $4,500 \div 9$ **10.** $160 \div 2$ **11.** $180 \div 3$ **12.** $2,800 \div 7$

_____   _____   _____   _____

13. The Ramirez family traveled 350 miles in one day. If they traveled for 7 hours, how many miles did they travel each hour?

_____

14. The Sleepy Way Hotel houses 240 people. If all the rooms are full and there are 3 people to each room, how many rooms does the hotel have?

_____

Test Prep   Circle the correct letter for the answer.

15. Rod has 180 seashells. One half of them are from the Pacific Ocean, and the other half are from the Atlantic Ocean. How many are from the Pacific Ocean? Which number sentence would you use to solve the problem?

A $180 + 180 = 360$ shells   **C** $18 \div 9 = 2$ shells

B $180 \div 2 = 90$ shells   **D** $1,800 \div 9 = 200$ shells

Name _____

Problem-Solving Skill
Multistep Problems

Rachel has 2 trays of 7 mum plants each. Then she buys 4 trays of zinnias with 6 plants in each tray. How many more zinnia plants than mum plants does Rachel have?

1. How can you find the total number of zinnia plants?

   a. Add $2 + 7 + 4 + 6$.

   b. Multiply 4×6.

   c. Multiply 2×4.

2. How can you find the total number of mum plants?

   a. Add $2 + 7$.

   b. Multiply 7×6.

   c. Multiply 2×7.

3. How can you solve the problem?

   a. Add the number of mum plants and zinnia plants.

   b. Subtract the number of zinnia plants from mum plants.

   c. Subtract the number of mum plants from zinnia plants.

Wade can buy mulch for $4 per bag. If he buys 10 bags or more, the cost is $3 per bag. Wade needs 9 bags of mulch. How much money can Wade save by buying 10 bags of mulch?

4. How can you find the total cost for 9 bags of mulch?

   a. Multiply $\$4 \times 9$.

   b. Multiply $\$3 \times 9$.

   c. Multiply $\$3 \times 10$.

5. What number sentence tells the cost of 10 bags of mulch?

   a. $\$4 \times 9 = \$36$

   b. $\$4 \times 10 = \$40$

   c. $\$3 \times 10 = \$30$

6. Show the steps you would take to solve the problem.

   _____

   _____

Name _____

Problem-Solving Strategy
Work Backward

Work backwards to solve each problem.

1. Lisa spent $15 in December. She spent $4 in January. She has $18 in the bank now. How much did Lisa have to start with?

_____

2. Stacy is 5 years older than Jeff. The piano teacher is 22 years older than Stacy. The piano teacher is 44 years old. How old is Jeff?

_____

3. Maya visits her grandparents every 2 years. She was 15 when she went for the third time. At what age did Maya first visit her grandparents?

_____

4. Sharon bought 3 books for $2 each and a magazine for $1.50. Her change was $2.50. How much money did Sharon give the clerk?

_____

5. Wade likes to feed the ducks at the lake. When he started feeding the ducks, two flew away. Five more ducks came to the lake. Then there were 11 ducks to feed. How many ducks were there when Wade started to feed them?

_____

6. The time in New York City is 1 hour later than it is in Chicago. The time in Chicago is 2 hours later than it is in Los Angeles. The time in Los Angeles is 3 hours later than it is in Honolulu. It is 2:00 P.M. in Honolulu. What time is it in New York City?

_____

7. Ingrid took several rolls of film from the photography club's storeroom. Mike took 3, Clark took 5, and Meg took 4. There were 10 left after Ingrid took hers. The storeroom had 25 rolls at the beginning of the day. How many rolls did Ingrid take?

_____

8. Billy developed a roll of film in the darkroom. 9 pictures didn't turn out. He gave 5 pictures to Rose and 7 pictures to Bob. Billy kept 15 pictures for himself. How many pictures were on the roll of film?

_____

Division with Remainders

Use counters to solve. Draw to show what you did.

1. Brittany bought 14 seeds.
She can plant 3 in a row.
How many rows can she plant?

   Brittany can plant ___ rows.

   How many seeds are left over?   ___ seeds are left over.

2. Fred gathered 27 eggs. He
can put 12 eggs in a carton.
How many cartons can he fill?

   Fred can fill ___ cartons.

   How many eggs are left over?   ___ eggs are left over.

3. Lucy has 20 tennis balls. She
can put 3 in a container. How
many containers can she fill?

   Lucy can fill ___ containers.

   How many balls are left over?   ___ balls are left over.

4. Jen's mom bought 18 apples.
She can put 5 in a basket.
How many baskets can she
fill with apples?

   Jen can fill ___ baskets.

   How many apples are left over?   ___ apples are left over.

Identify the Unknown to Solve a Problem

Explanation

A) A number sentence is an equation or inequality (you will learn about inequalities later) that includes numbers, one or more operation symbols ($+$, $-$, $\times$, $\div$), and an unknown quantity.

B) A variable is a letter or symbol that represents an unknown quantity.

C) We can write number sentences to represent a situation and use them to solve for an unknown quantity.

D) The first step to solving a problem is to identify what you are trying to solve (the unknown).

Examples – Identify the unknown in each situation and assign a variable using symbols and words.

1. Sheila watched 4 more videos than Anita. Anita watched 9 videos. How many videos did Sheila watch?

   The question in the problem—"How many videos did Sheila watch?"—gives us a clue what the unknown is. We don't know how many videos Sheila watched.

   Pick a letter to represent the number of videos Sheila watched. You can pick any letter in the alphabet but people often pick a letter that relates to the problem, for example S for Sheila.

   Let S = the number of videos that Sheila watched.

2. Bob types 28 words per minute. Eric can type 10 fewer than twice as many words per minute as Bob can type. Create an equation that relates the number of words per minute that Eric can type to the number of words per minute that Bob can type.

   This problem doesn't have an actual question to help us figure out what the unknown is. The problem is about the typing speeds of Bob and Eric. We are given the number of words per minute that Bob types (28). We are also given that Eric types 10 fewer than twice as many words per minute as Bob can type.

   We have to use Bob's speed to figure out Eric's. We do not know how fast Eric types without doing some problem solving, so Eric's typing speed is the unknown.

   Let E = the number of words per minute that Eric types.

NAME:_____

Practice Part 1. Identify the unknown in each situation and assign a variable using symbols and words.

1. Susan went to the store 18 times last month. Each time she went to the store she bought 5 cans of soup. How many cans of soup did Susan buy last month?

2. Mrs. Bailey has 18 boxes of markers. Each box of markers contains 10 markers. How many markers does Mrs. Bailey have?

3. Joe has 15 cartons of eggs. Each carton holds 12 eggs. Write an equation that can be used to determine the total number of eggs Joe has.

4. Carmen has 45 cards. If the cards are organized into 9 equal groups, how many cards are in each group?

5. Macey has 12 stickers that she is putting into a sticker book. If she places 4 stickers on each page, how many pages does she use?

6. Jane is 3 years older than Lizzy. Lizzy is 5 years older than Todd. Todd is 20. How old is Jane? How old is Lizzy?

7. Roger places 20 apples into 10 boxes. Each box has the same number of apples. How many apples does Roger place in each box?

8. Philip answered 4 fewer questions correctly than Andrew. Philip answered 10 questions correctly. Write an expression to determine the number of questions Andrew answered correctly.

9. Andrea is 4 inches taller than Carly. Andrea is 64 inches tall. Write an expression that could be used to determine the height of Carly.

10. Brandon ate 2 more pieces of pizza than Jason. Jason ate 3 slices. How many pieces of pizza did each boy eat?

Practice Part 2. Create a word problem and identify the unknown using a variable and words.

1.

2.

3.

4.

5.

A Little More or Less

Explanation

    A) You may have noticed patterns when adding or subtracting 1,000, 100, 10, 0.1, 0.01, or 0.001 to or from a number.

    B) Identifying patterns helps us solve problems.

Part 1. Look for a pattern

    1. Add or subtract each number sentence.

        a. $8{,}764.321 + 1{,}000 =$ g. $8{,}764.321 - 1{,}000 =$

        b. $8{,}764.321 + 100 =$ h. $8{,}764.321 - 100 =$

        c. $8{,}764.321 + 10 =$ i. $8{,}764.321 - 10 =$

        d. $8{,}764.321 + 0.1 =$ j. $8{,}764.321 - 0.1 =$

        e. $8{,}764.321 + 0.01 =$ k. $8{,}764.321 - 0.01 =$

        f. $8{,}764.321 + 0.001 =$ l. $8{,}764.321 - 0.001 =$

    2. Fill in the blank.

        a. Adding or subtracting _____ to 8,764.321 changes the hundreds place.

        b. Adding or subtracting _____ to 8,764.321 changes the tens place.

        c. Adding or subtracting _____ to 8,764.321 changes the tenths place.

        d. Adding or subtracting _____ to 8,764.321 changes the hundredths place.

        e. Adding or subtracting _____ to 8,764.321 changes the millions place.

3. Add or subtract.

   a. $9{,}999.999 + 1{,}000 =$ g. $9{,}999.999 - 1{,}000 =$

   b. $9{,}999.999 + 100 =$ h. $9{,}999.999 - 100 =$

   c. $9{,}999.999 + 10 =$ I. $9{,}999.999 - 10 =$

   d. $9{,}999.999 + 0.1 =$ j. $9{,}999.999 - 0.1 =$

   e. $9{,}999.999 + 0.01 =$ k. $9{,}999.999 - 0.01 =$

   f. $9{,}999.999 + 0.001 =$ l. $9{,}999.999 - 0.001 =$

4. Use place value to explain the difference between adding 1,000 to 8,764.321 and to 9,999.999.

5. Use place value to explain the difference between adding 100 to 8,764.321 and to 9,999.999.

6. Use place value to explain the difference between adding 0.1 to 8,764.321 and to 9,999.999.

7. Use place value to explain the difference between adding 0.01 to 8,764.321 and to 9,999.999.

Part 2. Use the patterns you identified when adding and subtracting 1,000, 100, 10, 0.1, 0.01, or 0.001 to determine the missing number in each number sentence. Be careful. More than one place value may have changed.

1. $3,879.1 + \square = 3,979.1$

2. $25.9 + \square = 26$

3. $4,729.34 - \square = 4,719.34$

4. $97.487 - \square = 97.477$

5. $32.979 + \square = 32.98$

6. $1,381.34 + \square = 2,391.34$

7. $193.68 - \square = 93.58$

8. $3.7 - \square = 2.6$

9. $8,999.9 + \square = 9,000$

10. $967.99 - \square = 856.88$

Converting Celsius to Fahrenheit

Explanation

A) In most countries, Celsius is used as the temperature scale. However, in some countries like the United States, Fahrenheit is used as the temperature scale.

B) When given a temperature in Celsius (C) and asked to find the equivalent Fahrenheit (F) temperature you can use the formula: $F = (C \times 9) \div 5 + 32$.

C) When simplifying any mathematical expression, use the order of operations (sometimes known as PEMDAS).

Order of Operations

Parentheses	Simplify expressions inside the parentheses first.
Exponents	Simplify any expressions with exponents.
Multiply **D**ivide	(multiplication and division are done in the same step from left to right)
Add **S**ubtract	(addition and subtraction are done in the same step from left to right)

Examples

If the current temperature in Munich, Germany, is 15 °C, what is the same temperature in degrees Fahrenheit?

Step 1 Use the formula $F = (C \times 9) \div 5 + 32$.

In the formula $F = (C \times 9) \div 5 + 32$,
C represents the temperature in Celsius and
F represents the temperature in Fahrenheit.

You are given C, the temperature in Celsius. C = 15 degrees.

Step 2. Replace C in the formula with 15.

$F = (15 \times 9) \div 5 + 32$

Step 3. Use order of operations to simplify.

$F = (15 \times 9) \div 5 + 32$ Simplify what's inside the Parentheses

$= 135 \div 5 + 32$ Divide

$= 27 + 32$ Add

$= 59$

Step 4. Include the units.

59 degrees Fahrenheit or 59 °F

<u>Practice</u> – Use the formula $F = (C \times 9) \div 5 + 32$ to convert each Celsius temperature to Fahrenheit.

1. 35 °C

2. 100 °C

3. 0 °C

4. 50 °C

5. 5 °C

6. 10 °C

7. 30 °C

8. 25 °C

9. 70 °C

10. 45 °C

<u>Quiz</u> – Convert each Celsius temperature to Fahrenheit.

1. 40 °C

2. 325 °C

3. 60 °C

4. 95 °C

5. 200 °C

NAME:_____

Number Sentence Match

Explanation

A) A number sentence is an equation or inequality (you will learn about inequalities later) that includes numbers, one or more operation symbols ($+$, $-$, $\times$, $\div$), and an unknown quantity.

B) A variable is a letter or symbol that represents an unknown quantity.

C) We can write number sentences to represent a situation and use them to solve for an unknown quantity.

Examples

1. There are 5 candies and each candy costs 12 cents. How much does it cost to buy all 5 candies?

   Sarah writes the number sentence $5 \times 12 = C$ to represent the problem.

   a) What does the variable C represent?
   The variable is used to represent the unknown quantity, the number the problem is asking us to find. What are we being asked to find? The cost of 5 candies.
   $C =$ the cost of 5 candies

   b) What does the number 12 represent in the number sentence?
   Reread the original word problem and underline the meaning of 12:
   There are 5 candies and <u>each candy costs 12 cents</u>. How much does it cost to buy all 5 candies?
   12 represents the cost in cents of each candy.

   c) What does the number 5 represent?
   Reread the original word problem and underline the meaning of 5:
   <u>There are 5 candies</u> and each candy costs 12 cents. How much does it cost to buy all 5 candies?
   5 represents the number of candies.

   d) What does $\times$ represent?
   $\times$ is the multiplication operation and represents the relationship between the numbers in the number sentence. The operation multiply was chosen for the word problem because the cost of 5 candies is
   $12 + 12 + 12 + 12 + 12$ or 5×12, based on the fact that each candy is 12 cents.

2. A teacher has 24 markers and wants to divide them evenly among 6 students. How many markers does each student get?

Mathew uses the number sentence $24 \div 6 = \square$ to represent the problem.

   a) What does $\square$ represent?

     The box is used to represent the unknown quantity, the number the problem is asking us to find. What are we being asked to find? The number of markers each student receives.

     $\square$ = the number of markers each student receives.

   b) What does the number 24 represent?

     Reread the problem to determine the meaning of 24.

       A teacher has 24 markers and wants to divide them evenly among 6 students. How many markers does each student get?

     24 represents the total number of markers the teacher has.

   c) What does the number 6 represent?

     Reread the problem to determine the meaning of 6.

       A teacher has 24 markers and wants to divide them evenly among 6 students. How many markers does each student get?

     6 represents the number of students who receive a marker.

Practice – Match each number sentence to a problem that could be solved using the number sentence.

1. $8 \times 4 = R$

2. $32 \div 2 = N$

3. $12 \div \square = 4$

4. $4 \times 3 = \square$

5. $9 \times \square = 27$

6. $3 = F \div 9$

7. $5 \times Z = 15$

8. $15 \div 3 = C$

9. $Y \times 8 = 56$

10. $16 \div 2 = \square$

a. Alice earns $12 dollars by selling 4 boxes of cookies. How much did each box of cookies cost?

b. There are 16 customers waiting in line and 2 clerks at cash registers. Each clerk helps the same number of customers. How many customers does each clerk help?

c. There are 8 shelves in a bookcase and 4 books on each shelf. How many books are in the bookcase?

d. Mary earns 27 points after answering 9 questions correctly. If each question is worth the same number of points, how many points was each question worth?

e. Tom places 4 tennis balls in each box. There are 3 boxes. What is the total number of tennis balls that Tom places in all the boxes?

f. Tony buys 8 equally priced pizzas and spends $56 dollars. How much does each pizza cost?

g. Mason sells dinner meals for $5 each and earns $15. How many dinners did Mason sell?

h. Emilia creates 3 equal groups of 15 counting cubes. How many counting cubes are in each group?

i. A coach divides the team members into 3 groups with 9 players in each group. How many players are on the team?

j. There are 32 students in a class. The class is split into 2 even teams. How many students are on each team?

Quiz

1. Book covers are on sale for $2. Paula buys 9 covers. How much does Paula pay?

   Paula uses this number sentence to solve the problem: $2 \times 9 = B$

   What does the variable represent?

   a) The amount Paula pays

   b) The cost of each book cover

   c) The number of book covers Paula buys

   d) The number of books Paula needs to cover

2. Sean passes out an equal number of marbles to each of the 30 students in the class. If each student is given 5 marbles, how many markers did Sean pass out?

   Sean begins to write a number sentence to solve the problem: $30 \_ 5 = M$

   Which operation goes in __?

   a) +   b) –   c) ×   d) ÷

3. Which problem could be represented by the number sentence: $2 \times 3 = \square$

   a) What number times 2 is 3?

   b) What number multiplied by 3 is 2?

   c) What number is the quotient of 2 and 3?

   d) What number is the product of 2 and 3?

4. Which problem could be used to represent the number sentence $81 \div 9 = \square$

   a) Rob begins with 81 cents and then spends 9 cents. How many cents does Rob have now?

   b) Lilly spends 81 dollars on 9 copies of the same book. What is the cost of each book?

   c) Jo earns 81 points on a test and then receives 9 bonus points. What is the total number of points that Jo earns?

    d) Marge makes 81 cookies for each of her 9 friends' birthday parties. How many cookies does Marge make altogether?

5. Four friends go out to dinner and split the $24 bill evenly. How much does each friend contribute to the bill?

The problem can be solved using the number sentence: $24 \div 4 = C$

What does the variable represent?

    a) The cost of the bill

    b) The cost of each meal

    c) The amount each friend paid

    d) The number of friends sharing the bill

Write an equation. Is the given value a solution?

Weight A veterinarian weighs 140 lb. When she steps on a scale while holding a dog, the scale shows 192 lb. Let d represent the weight of the dog. Does the dog weigh 52 lb?

Understand the Problem

1. How much does the veterinarian weigh? _____

2. What does the variable d represent? _____

3. How much do the dog and veterinarian weigh together? _____

4. What are you asked to do? _____

Make and Carry Out a Plan

5. Write a variable expression to represent
   the total weight of the veterinarian and dog. _____

6. Write an equation in which the variable expression
   is equal to the scale weight of the veterinarian and dog. _____

7. Is the equation you wrote true, false, or an open sentence? _____

8. Substitute 52 for d in the equation. _____

9. Is the equation true or false? _____

10. Does the dog weigh 52 lb? _____

Check the Answer

11. Subtract 52 lb from 192 lb. _____
    If the dog weighs 52 lb, the difference will be equal to the weight of
    the veterinarian.

Solve Another Problem

12. Drew has 32 trading cards. Together, Beth and Drew have
    56 trading cards. Let b represent the number of trading cards Beth
    has. Write an equation to find out whether Beth has 25 trading cards.

    _____

Mia has $20 less than Brandi. Brandi has d dollars. Write a variable expression for the amount of money Mia has.

Understand the Problem

1. Who has more money, Brandi or Mia? _____

2. What operation do you think of when you hear the phrase *less than*? _____

3. Describe how much money Mia has, compared to how much Brandi has. _____

4. What does the variable d represent? _____

5. The problem asks you to write an expression for what? _____

Make and Carry Out a Plan

6. You are given two pieces of information in the problem: the amount of money that Brandi has and the fact that Mia has $20 less than Brandi.
To write an expression for the amount Mia has, start by writing the amount that Brandi has. _____

7. To complete the expression, show the subtraction of $20 from the amount that Brandi has. _____

Check the Answer

8. You know that Brandi has $20 more than Mia. To check that your expression for this amount is correct, add $20 to it to see whether you get Brandi's amount.

_____

Solve Another Problem

9. Deena has 5 more marbles than Jonna. Jonna has m marbles. Write an expression to represent the number of marbles Deena has. _____

Seafood A restaurant chef needs $8\frac{1}{2}$ lb of salmon. To get a good price, he buys more than he needs. He ends up with $4\frac{7}{8}$ lb too much. How much salmon did he buy?

Understand the Problem

1. How much salmon does the chef need? _____

2. How much extra salmon did the chef buy? _____

3. What are you asked to find? _____

Make and Carry Out a Plan

4. Use the sentence "The amount of salmon the chef bought minus the amount of salmon he needs equals the amount of extra salmon he has" to write an equation to represent the situation. Let s represent the amount of salmon he bought. _____

5. Write the mixed numbers in the equation as improper fractions. _____

6. What fraction must you add to each side to solve for $s?$ _____

7. Rewrite the equation using a common denominator. _____

8. Simplify to solve the equation for s. _____

9. Change the result to a mixed number. _____

10. How much salmon did the chef buy? _____

Check the Answer

11. Add the amount of extra salmon the chef had to the amount he needed. _____
The result should be the amount of salmon he bought.

Solve Another Problem

12. Each month, Sally buys a $37\frac{1}{2}$ lb bag of food for her dog. This month, she bought $5\frac{1}{4}$ lb more than she needed because the larger bag was on sale. How many pounds of dog food are in the larger bag? _____

The Service Club buys a 10-yard roll of edging to put around two trees in front of the school. The club uses $5\frac{2}{3}$ yards of edging for one tree and $3\frac{1}{2}$ yards for the other tree. How much edging is left?

Understand

1. Circle the information you will need to solve the problem.

2. How do you plan to solve this problem?

   _____

   _____

Plan and Carry Out

3. How much of the edging has been used?

   _____

4. Add these amounts together using a common denominator.

   _____

5. How much edging did the club purchase?

   _____

6. How much edging is left over?

   _____

Check

7. Explain how you can check your answer.

   _____

Solve Another Problem

8. Linda bought a 15-yard roll of fabric to make a suit. She used $8\frac{3}{1}$ yards of fabric for the blouse and $5\frac{1}{4}$ yards for the pants. How much fabric is left?

   _____

Hiking You are hiking a 2-mi-long trail. You pass by a sign showing that you have hiked 1,000 ft. How many feet are left?

Understand the Problem

1. How long is the trail you are hiking? _____

2. How far have you hiked? _____

3. What are you asked to find? _____

Make and Carry Out a Plan

4. How many feet are in a mile? _____

5. What is the conversion factor for converting miles to feet? _____

6. Multiply 2 mi by the conversion
   factor to find the number of feet in 2 mi. _____

7. Write an expression to find the number
   of feet you still have to hike on the 2-mi trail. _____

8. How many feet are left to hike? _____

Check the Answer

9. To check your work, add 1,000 to your
   answer. Then convert the sum to miles. _____

Solve Another Problem

10. You are in-line skating around a 3-mi loop. You just passed a
    marker showing you have skated 5,000 ft. How many feet are left? _____

Selecting and Interpreting Quotients

Explanation

A) The result of dividing one number by another number is called the quotient.

B) When the quotient is not a whole number, the part that is left over is called the remainder.

C) The context in which the problem is situated can help you decide how to handle the remainder and how to express the quotient.

D) The solution to the problem can involve:

    a. Rounding the quotient down to the nearest whole number

    b. Rounding the quotient up to the next whole number

    c. Rounding the quotient to a particular decimal place

    d. Writing the quotient as a mixed number with the remainder as a fraction over the divisor.

E) Your task is to consider the context in which a problem is situated to select the most useful form of the quotient for the solution.

Examples

1. Ella is packing 601 feathers into bags for a craft show. The number of feathers that fit in each bag is 23. How many complete bags of feathers can Ella pack?

    a. Write the division problem and state the quotient. $601 \div 23 = 26R3$

    b. Explain how to handle the remainder. Ignore the remainder.

    c. Write the solution to the problem. Ella can pack 26 complete bags.

2. Edward has $7.83. He wants to buy toy airplanes that cost $2.10 each. What is the greatest number of toy airplanes he can buy? How much money will Edward have left after he buys that many toy airplanes?

    a. Write the division problem and state the quotient.
$7.83 \div 2.10$
After moving the decimal two places in the dividend and quotient the division problem becomes $783 \div 210 = 3R153$

    b. Explain how to handle the remainder. Interpret the remainder as 153 cents, which is $1.53.

    c. Write the solution to the problem. Edward can buy 3 toy airplanes and will have $1.53 left.

Practice

1. Blake is using containers that hold 26 beads each. What is the smallest number of containers he will need for 369 beads?

   a. Write the division problem and state the quotient.

   b. Explain how to handle the remainder.

   c. Write the solution to the problem.

2. Richard has $40.40 to spend on party decorations that cost 21¢ each. What is the greatest number of party decorations Richard can buy?

   a. Write the division problem and state the quotient.

   b. Explain how to handle the remainder.

   c. Write the solution to the problem.

3. There are 873 snacks that Maria needs to put onto trays. If each tray gets 20 snacks, how many whole trays can Maria make?

   a. Write the division problem and state the quotient.

   b. Explain how to handle the remainder.

   c. Write the solution to the problem.

4. Tari wants to put a set of 24 stickers into each student's backpack to welcome them to school next year. If she has 723 stickers, how many students can get a complete set?

   a. Write the division problem and state the quotient.

   b. Explain how to handle the remainder.

   c. Write the solution to the problem.

5. It costs Andrea 60¢ in tolls to drive to work each day. She has $9.20 for tolls. How many trips to work can Andrea make?

   a. Write the division problem and state the quotient.

   b. Explain how to handle the remainder.

   c. Write the solution to the problem.

6. Catherine is making sets of wooden farm animals. Each set has 6 animals, and she has 681 animals. What is the greatest number of sets she can make? What part of a set will Catherine have left after she makes all of the complete sets?

    a. Write the division problem and state the quotient.

    b. Explain how to handle the remainder.

    c. Write the solution to the problem.

7. Dustin had 511 flowers to decorate 13 letters on a school float. He wants each letter to be decorated with the same number of flowers, and he wants to use as many flowers as he can. How many flowers did he use? How many flowers were left?

    a. Write the division problem and state the quotient.

    b. Explain how to handle the remainder.

    c. Write the solution to the problem.

8. Troy had 5.21 yards of ribbon to make bows that each used 2.8 yards of ribbon. How many ribbons could Troy make? How much ribbon was left over?

    a. Write the division problem and state the quotient.

    b. Explain how to handle the remainder.

    c. Write the solution to the problem.

9. Jenni needs to store 858 sets of drumsticks in boxes that each hold 16 sets. What is the least number of boxes Jenni will need to store all the drumsticks?

    a. Write the division problem and state the quotient.

    b. Explain how to handle the remainder.

    c. Write the solution to the problem.

10. Charlotte put 391 books on shelves. Each shelf had 15 books, except the last shelf. How many books were on the last shelf?

    a. Write the division problem and state the quotient.

    b. Explain how to handle the remainder.

    c. Write the solution to the problem.

NAME:_____

<u>Quiz</u>

1. Laura had $5.97 to spend on books that each cost $2.80. How many books could Laura buy? How much money did Laura have left?

    a. Write the division problem and state the quotient.

    b. Explain how to handle the remainder.

    c. Write the solution to the problem.

2. David placed 26 notebooks in each box. How many full boxes did he use if he started with 793 notebooks?

    a. Write the division problem and state the quotient.

    b. Explain how to handle the remainder.

    c. Write the solution to the problem.

3. Lianna is scheduling music groups for a concert. The concert can last no more than 150 minutes. If each music group will play for 8 minutes, how many music groups can she schedule for the concert? How many minutes does she have for announcements?

    a. Write the division problem and state the quotient.

    b. Explain how to handle the remainder.

    c. Write the solution to the problem.

Place Values with Placeholders 2

Explanation

A) The value of a digit depends on its position in a number. This position is called its *place value*.

B) Each place value refers to a group of ten of the place value to its immediate right. The tens place refers to a group of ten ones. The hundreds place refers to a group of ten tens.

C) The place value names to the left of the decimal point end in "s".
The place value names to the right of the decimal point end in "ths".

D) Use "and" to represent the position of the decimal point.

E) Zeros are used as placeholders.

F) The following table shows place value names from millions to millionths.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	.	tenths	hundredths	thousandths	ten thousandths	hundred thousandths	millionths

Examples

1. What is 70,000.5 written in words?

   Seventy thousand and five tenths

2. What is six hundred and seven thousandths written as a number?

   600.007

3. What is 40,000.04 written in words?

   Forty thousand and four hundredths

NAME:_____

1. What is 4,000,000.6 written in words?

2. What is two hundred thousands and one thousandth written as a number?

3. What is 2,000.00006 written in words?

4. What is six thousand and five hundredths written as a number?

5. What is 40.0005 written in words?

6. What is four hundred and eight millionths written as a number?

Quiz

1. What is 10.00002 written in words?

2. What is four hundred thousand and three millionths written as a number?

3. What is 200.0005 written in words?

Place Values with Placeholders 1

Explanation

A) The value of a digit depends on its position in a number. This position is called its *place value*.

B) Each place value refers to a group of ten of the place value to its immediate right. The tens place refers to a group of ten ones. The hundreds place refers to a group of ten tens.

C) The place value names to the left of the decimal point end in "s".
The place value names to the right of the decimal point end in "ths".

D) Use "and" to represent the position of the decimal point.

E) Zeros are used as placeholders.

F) The following table shows place value names from millions to millionths.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	.	tenths	hundredths	thousandths	ten thousandths	hundred thousandths	millionths
							.						

Examples

1. What is 60.6 written in words?

   Sixty and six tenths

2. What is eighty-thousand and eight ten thousandths written as a number?

   80,000.0008

3. What is 400.04 written in words?

   Four hundred and four hundredths

NAME:_____

Practice

1. What is 20,000.0002 written in words?

2. What is five million and five millionths written as a number?

3. What is 900,000.00009 written in words?

4. What is six thousand and six thousandths written as a number?

5. What is 7,000,000.000007 written in words?

6. What is twenty and two tenths written as a number?

Quiz

1. What is 1,000.001 written in words?

2. What is nine hundred and nine hundredths written as a number?

3. What is 500,000.00005 written in words?

0.1, 0.01, or 0.001 more or less
     Worksheet 1

Name _____

Write the answer to each problem in the blank.

1.)   8.693 + 0.01   = _____

2.)   14.608 − 0.001   = _____

3.)   0.1 + 9.178   = _____

4.)   0.01 + 11.2   = _____

5.)   0.2082 − 0.01   = _____

6.)   0.9465 + 0.1   = _____

7.)   8.991 + 0.1   = _____

8.)   0.01 + 3.879   = _____

9.)   0.001 + 0.01968   = _____

10.)   195.3 − 0.01   = _____

11.)   2.0248 − 0.01   = _____

12.)   8 − 0.01   = _____

13.)   2.0034 − 0.001   = _____

14.)   0.001 + 53.501   = _____

15.)   7.696 + 0.01   = _____

16.)   7.911 + 0.1   = _____

17.)   0.001 + 0.919   = _____

18.)   1.286 − 0.1   = _____

19.)   5.02 − 0.1   = _____

20.)   0.01 + 0.19974   = _____

21.)   13.219 + 0.001   = _____

22.)   32.37 + 0.01   = _____

23.)   0.779 + 0.001   = _____

24.)   0.1 + 70.991   = _____

25.)   77.077 − 0.1   = _____

26.)   8.006 − 0.1   = _____

27.)   0.01 + 0.59   = _____

28.)   89.973 + 0.1   = _____

29.)   8.757 + 0.1   = _____

30.)   0.1 + 68.906   = _____

Adding with 0.1, 0.01, and 0.001
Worksheet 2

Name _____

Write the answer to each problem in the blank.

1.)   37.119 + 0.001   = _____

2.)   9.955 + 0.01   = _____

3.)   57.956 + 0.1   = _____

4.)   0.001 + 6.029   = _____

5.)   0.001 + 7.941   = _____

6.)   33.104 + 0.01   = _____

7.)   71.986 + 0.1   = _____

8.)   0.001 + 4.488   = _____

9.)   89.279 + 0.01   = _____

10.)   0.01 + 0.6962   = _____

11.)   0.01 + 8.574   = _____

12.)   9.965 + 0.1   = _____

13.)   67.396 + 0.1   = _____

14.)   93.25 + 0.001   = _____

15.)   0.001 + 2.0033   = _____

16.)   42.665 + 0.1   = _____

17.)   3.065 + 0.01   = _____

18.)   0.001 + 81.77   = _____

19.)   2.8523 + 0.1   = _____

20.)   8.48 + 0.01   = _____

21.)   0.1 + 905.2   = _____

22.)   75.672 + 0.01   = _____

23.)   0.001 + 4.349   = _____

24.)   0.001 + 6.1809   = _____

25.)   0.896 + 0.01   = _____

26.)   0.8927 + 0.001   = _____

27.)   80.24 + 0.1   = _____

28.)   303.2 + 0.001   = _____

29.)   0.1 + 9.536   = _____

30.)   7.0614 + 0.01   = _____

Adding with 0.1, 0.01, and 0.001
Worksheet 1

Name _____

Write the answer to each problem in the blank.

1.)   64.198 + 0.001   = _____

2.)   3.275 + 0.01   = _____

3.)   62.372 + 0.001   = _____

4.)   0.001 + 55.516   = _____

5.)   0.01 + 8.444   = _____

6.)   24.449 + 0.1   = _____

7.)   89.911 + 0.1   = _____

8.)   0.001 + 5.428   = _____

9.)   44.607 + 0.001   = _____

10.)   0.01 + 0.29847   = _____

11.)   0.1 + 5.897   = _____

12.)   1.647 + 0.001   = _____

13.)   63.322 + 0.01   = _____

14.)   65.44 + 0.1   = _____

15.)   0.01 + 2.308   = _____

16.)   88.873 + 0.001   = _____

17.)   5.382 + 0.1   = _____

18.)   0.1 + 97.02   = _____

19.)   7.911 + 0.01   = _____

20.)   7.452 + 0.01   = _____

21.)   0.001 + 750.8   = _____

22.)   79.143 + 0.001   = _____

23.)   0.01 + 8.252   = _____

24.)   0.001 + 8.4509   = _____

25.)   8.893 + 0.01   = _____

26.)   0.3609 + 0.01   = _____

27.)   94.835 + 0.01   = _____

28.)   86.49 + 0.001   = _____

29.)   0.1 + 6.51   = _____

30.)   5.6404 + 0.1   = _____

Using Ordering, Grouping, and the Number 0 to Add

Review   The answer key for this lesson is on the last page.

Many properties of numbers can be used to simplify numeric equations or expressions.

Properties of **ordering**: $2 + 3 = 3 + 2$

Properties of **grouping**: $(2 + 3) + 1 = 2 + (3 + 1)$

Properties of the **number 0**: $2 + 0 = 0 + 2 = 2$

Example A

Simplify $5 + (4 + 0) =$ ___ .

STEP 1	Perform the operation inside the parentheses.	$(4 + 0) = 4$
STEP 2	Rewrite the new equation.	$5 + 4 =$ ___
STEP 3	Perform the operation.	$5 + 4 = 9$

So, $5 + (4 + 0) = 9$.

****

Example B

Simplify $(6 + 1) + 0 + 4 =$ ____ .

STEP 1   Perform the operation involving 0. $0 + 4 = 4$

STEP 2   Rewrite the new equation. $(6 + 1) + 4 =$ ____

STEP 3   Reorder the given numbers so that a sum of 10 can be formed. $(1 + 6) + 4 =$ ____

STEP 4   Regroup the given numbers so that a sum of 10 can be formed. $1 + (6 + 4) =$ ____

STEP 5   Perform the operation inside the parentheses. $1 + 10 =$ ____

STEP 6   Perform the operation. $1 + 10 = 11$

So, $(6 + 1) + 0 + 4 = 11$.

****

Guided Practice

Simplify 3 + 0 + (2 + 7) = ____ .

Perform the operation involving 0.   ____ + ____ = ____

Rewrite the new equation.   ____ + (____ + ____) = ____

Reorder the given numbers so that a sum of 10 can be formed.

____ + (____ + ____) = ____

Regroup the given numbers so that a sum of 10 can be formed.

_____ = _____

Perform the operation inside the parentheses.   ____ + ____ = ____

Perform the operation.   _____ = _____

So, 3 + 0 + (2 + 7) = ____ .

Practice

Simplify.

1.   (0 + 7) + 2 = ____

2.   (5 + 8) + 2 + 0 = ____

Quiz

1.   Simplify $(1 + 6) + 4 = $ ____ .

      A.   10

      B.   11

      C.   12

      D.   15

2.   Simplify $0 + (3 + 4) = $ ____ .

      F.   0

      G.   7

      H.   8

      J.   10

3.   Simplify $(1 + 7) + 0 + 9 = $ ____ .

      A.   17

      B.   18

      C.   24

      D.   26

4.   Simplify $0 + 5 + (4 + 5) = $ ____ .

      F.   4

      G.   9

      H.   14

      J.   15

Answer Key

Guided Practice

3, 0, 3

3, 2, 7

3, 7, 2

(3 + 7) + 2

10, 2

12

12

Practice

1.   9

2.   15

Quiz

1.   B.   11

2.   G.   7

3.   A.   17

4.   H.   14