

NTI DAY #2

(weather-closed school day)

PACKET TWO (Math)

General Directions:

Due to weather, Harrison County Schools are closed. In an effort to utilize this day on the school calendar, your child is assigned and should work on this “packet” of school work today. It will count as a grade for this subject. The work attached is specific to the subject listed above. Please contact your child’s teacher of this subject at 234-7123 in the event you/your student have questions on this packet. Staff and teachers reported to HCMS today and are available should you have questions.

While this is DUE no later than the last school day before the 3rd nine-weeks ends, we **strongly encourage** students to turn it in to their teacher as soon as it’s complete (soon after the NTI day) to avoid it being lost, eaten by the family pet, burned to keep warm, etc

NTI packet:

Choose **one** of the following Menu options to complete.

- 1) Play a Board Game or Video Game with a family member and explain how Math is used in the game.
- 2) Measure the snow outside in inches, record the temperature, and watch the weather forecast. Email me a picture of your measurement and predict if we will have school tomorrow based on the snowfall, temperature, and weather forecast.
- 3) Choose a Composite number between 20 and 150. List all of its factors and the first ten multiples.
- 4) 2,3,5, 7, and 11 are the first five prime numbers. List the prime numbers from 2 to 100.
- 5) Look around your house for rectangles. Take a picture of at least 3 rectangles that you see. Email me your pictures.
- 6) Look at the weekly shopper and find an example of a unit rate problem and solve it. Here is an example: The cost is \$9.94 for 60 pieces. How much does each piece of candy cost. $9.94 \div 60 = 0.165$ or 0.17 approximately 17 cents for each piece



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Name _____

Skill Drill 22

Powers of 10

$3^4 = 3 \times 3 \times 3 \times 3 = 81$ $100 = 10 \times 10 = 10^2$
 $1,000 = 10 \times 10 \times 10 = 10^3$
 $10,000 = 10 \times 10 \times 10 \times 10 = 10^4$
 $100,000 = 10 \times 10 \times 10 \times 10 \times 10 = 10^5$

exponent
Read 3^4 as 3 to the 4th power

Write the exponent.

1. $5 \times 5 \times 5 = 5$ —

2. $3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 = 3$ —

3. $6 \times 6 \times 6 \times 6 \times 6 = 6$ —

4. $8 \times 8 \times 8 \times 8 = 8$ —

Use exponents to complete each number sentence. *Exponential Form*

5. $4 \times 4 \times 4 \times 4 \times 4 = 4$ —

6. $7 \times 7 \times 7 \times 7 \times 7 \times 7 =$ —

7. $3 \times 3 =$ —

8. $9 \times 9 \times 9 \times 9 =$ —

9. $2 \times 2 \times 2 \times 2 \times 2 \times 2 =$ —

10. $5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 =$ —

11. $8 \times 8 \times 8 =$ —

12. $4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4 =$ —

13. $6 \times 6 \times 6 \times 6 \times 6 =$ —

14. $7 \times 7 \times 7 \times 7 =$ —

Use exponents to write each power of 10.

15. $10,000 =$ —

16. $100 =$ —

17. $1,000,000 =$ —

18. $1,000 =$ —

19. $100,000 =$ —

20. $10,000,000 =$ —

Multiply to find the standard numeral. or *value*

21. 3^4 _____ 22. 2^3 _____ 23. 5^3 _____ 24. 8^3 _____ 25. 6^4 _____

26. 4^5 _____ 27. 7^4 _____ 28. 6^2 _____ 29. 2^8 _____ 30. 3^2 _____

31. 10^4 _____ 32. 4^3 _____ 33. 7^2 _____ 34. 5^4 _____ 35. 9^4 _____

36. 8^4 _____ 37. 10^6 _____ 38. 6^3 _____ 39. 8^2 _____ 40. 5^5 _____

Order of Operations

Name _____

Date _____

* Evaluate each expression. Show all work on notebook paper. Write the final answer on the answer line.

① $6 \times 3 \div 2 =$ _____

② $4 + 3 \times 7 =$ _____

③ $12 \div 4 + 2 =$ _____

④ $36 \div (6 + 3) =$ _____

⑤ $14 \times (6 \div 2) \div 7 =$ _____

⑥ $(3 + 7^2) \div 4 =$ _____

⑦ $24 \div (6 \div 2) \times 5 =$ _____

⑧ $16 \div 2 - 4 \times (6 - 5) =$ _____

⑨ $3^2 \times 5 + 2 =$ _____

⑩ $50 \div 5^2 =$ _____

⑪ $28 - 12 \div 4 =$ _____

⑫ $8 \times 10 \div 5 =$ _____

⑬ $5^2 + 8^2 \div (4 - 2) =$ _____

⑭ $2^5 \div 8 - (12 \div 12) + 2 =$ _____

⑮ $12^1 - 8 \times 4 \div 2^2 =$ _____

⑯ $2^5 \div 8 - (8 \div 4) =$ _____

⑰ $49 - 28 \div 7 =$ _____

⑱ $5^3 - 4 + 3 =$ _____

⑲ $3^3 + 2^2 - 6 =$ _____

⑳ $36 \div 3 - 6 + 2 \times 2^3 =$ _____

* Write the order of operations (in order ")

① _____ ② _____ ③ _____

④ _____ ⑤ _____ ⑥ _____

Variables and Expressions

Name _____ Date _____ Class Period _____

Vocabulary: Read the sentence and fill in the blank with a vocabulary word.

1. An _____ is a mathematical statement that shows that two expressions are equivalent.
2. An _____ expression contains one or more variables.
3. A _____ expression contains numbers and operation symbols.
4. A _____ is a symbol or letter used for a quantity that can change.
5. A value that makes an equation true is called a _____.

Write whether the expression is algebraic or numerical.

6. $15 + f$ _____ 7. $45 - 40 + 5 - 2$ _____
 7. $10 + (3 - 2)$ _____ 8. $(16 + a) \times 5 - 4$ _____

Evaluate each expression to find the missing values in the tables.

9.

a	$a + 18$
10	28
12	
14	

10.

y	$y \div 6$
18	3
30	
42	

11.

n	$n \div 5 + 7$
10	9
20	
30	

Find an expression for each table.

12.

s	
36	3
48	4
60	5

13.

t	
6	30
7	35
8	40

14.

b	
100	79
75	54
50	29

Write each phrase as an expression.

15. 26 more than n

16. the difference of 100 and 17

17. the quotient of 180 and 15

18. the product of 20 and n

19. There are more reptile species than amphibian species. Let n represent the number of living reptile species. There are 3,100 living species of amphibians. Write an expression to show how many more reptile species there are than amphibian species. _____

Determine whether the given value of the variable is a solution. Show the work.

20. $5d = 70$ for $d = 12$

21. $15 + m = 27$ for $m = 46$

22. $x - 61 = 75$ for $x = 75$

23. $12t = 74$ for $t = 6$

24. Carla had \$15. After she bought lunch, she had \$8 left. Write an equation using the variable x to model this situation. _____

25. Seventy two people signed up for the soccer league. After the players were evenly divided into teams, there were 6 teams in the league. Write an equation to model this situation using the variable x .

Write Algebraic Expressions

Word problems use expressions that you can write with symbols. An **algebraic expression** has at least one variable. A **variable** is a letter or symbol that represents one or more numbers. Writing algebraic expressions for words helps you solve word problems.

These are a few common words that are used for operations.

add (+)

sum
increased by
plus
more than

subtract (-)

difference
minus
decreased by
less
less than

multiply (×)

product
times

divide (÷)

quotient
divided by

17 more than x

$$x + 17$$

“More than” means add.

“17 more than x ” means add 17 to x .

four times the sum of 7 and n

$$4 \times (7 + n)$$

“Times” means multiply.

“Sum” means add.

The words mean multiply 4 by $(7 + n)$.

A number next to a variable always shows multiplication.

For example, $5n$ means the same as $5 \times n$.

Write an algebraic expression for the word expression.

- 1.
- b
- divided by 9

- 2.
- c
- more than 5

- 3.
- d
- decreased by 29

4. 8 times
- g

- 5.
- p
- increased by 12

6. the quotient of
- k
- and 14

7. 17 less than the product of 3 and
- m

8. 2 less than the quotient of
- d
- and 16

1. There are 16 ounces in 1 pound. Which expression gives the number of ounces in p pounds?

(A) $16 + p$
 (B) $16 - p$
 (C) $16p$
 (D) $p \div 16$

2. The length of a swimming pool is 5 feet shorter than twice the width. Let n represent the width. Which expression gives the length of the swimming pool?


(A) $2n + 5$
 (B) $2n - 5$
 (C) $2(n - 5)$
 (D) $2(n + 5)$

3. Carmen's family rents a boat at Big Lake at the rate described.

BIG LAKE BOAT

\$200 each day

\$4 for each gallon of gasoline used



19-ft

RENTAL

Which expression gives the total cost of the day's rental if her family uses n gallons of gasoline?

(A) $200 - 4n$ (C) $(200 + 4) \times n$
 (B) $200 + 4n$ (D) $200n + 4$

4. There are 5,280 feet in 1 mile. Which expression gives the number of feet in m miles?

(A) $5,280m$ (C) $5,280 - m$
 (B) $5,280 \div m$ (D) $5,280 + m$

Problem Solving

5. Let h represent Mark's height in inches. Suzanne is 7 inches shorter than Mark. Write an algebraic expression that represents Suzanne's height in inches.
6. A company rents bicycles for a fee of \$10 plus \$4 per hour of use. Write an algebraic expression for the total cost in dollars for renting a bicycle for h hours.

Addition Equations

*Show equations steps and check

$$\textcircled{1} \quad 25 + x = 32$$

$$\textcircled{2} \quad 81 + m = 90$$

$$\textcircled{3} \quad 5 + 3 = 23$$

$$\textcircled{4} \quad v + 10 = 49$$

$$\textcircled{5} \quad t + 9 = 87$$

$$\textcircled{6} \quad x + 13 = 27$$

$$\textcircled{7} \quad d + 78 = 114$$

$$\textcircled{8} \quad y + 19 = 41$$

Multiplication Equations

*Solve showing equation steps and Check.

$$\textcircled{1} \quad 8y = 112$$

$$\textcircled{2} \quad 2x = 24$$

$$\textcircled{3} \quad 24s = 144$$

$$\textcircled{4} \quad 147 = 7d$$

$$\textcircled{5} \quad 15p = 450$$

$$\textcircled{6} \quad 84 = 6v$$

$$\textcircled{7} \quad 10t = 130$$

$$\textcircled{8} \quad 128 = 16w$$

Division Equations

* Solve showing equation steps and check

$$\textcircled{1} \quad \frac{v}{7} = 28$$

$$\textcircled{2} \quad 2 = \frac{w}{25}$$

$$\textcircled{3} \quad 9 = \frac{p}{12}$$

$$\textcircled{4} \quad 26 = \frac{x}{3}$$

$$\textcircled{5} \quad \frac{n}{4} = 28$$

$$\textcircled{6} \quad \frac{d}{59} = 2$$

$$\textcircled{7} \quad \frac{t}{30} = 14$$

Subtraction Equations

*Show equation steps and check

$$\textcircled{1} \quad 57 = x - 8$$

$$\textcircled{2} \quad h - 125 = 75$$

$$\textcircled{3} \quad d - 22 = 38$$

$$\textcircled{4} \quad a - 36 = 100$$

$$\textcircled{5} \quad m - 50 = 277$$

$$\textcircled{6} \quad 83 = y - 17$$

Write Equations

To write an equation for a word sentence, write the words as mathematical expressions and write = for "equals" or "is."

Write an equation for the word sentence.

Example 1 6 fewer than a number is $12\frac{2}{3}$.

Step 1 Choose a variable.

6 fewer than a number is $12\frac{2}{3}$.

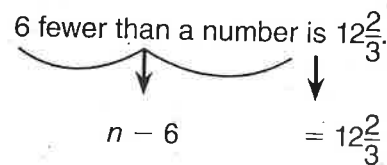
Let n represent a number.

Step 2 Identify the operation.

6 fewer than n is $12\frac{2}{3}$.

"Fewer than" means subtract.

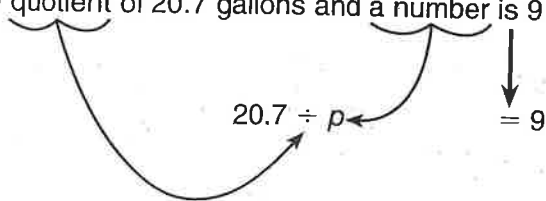
Step 3 Write an equation.



So, the equation is $n - 6 = 12\frac{2}{3}$.

Example 2

The quotient of 20.7 gallons and a number is 9 gallons.



So, the equation is $20.7 \div p = 9$.

Write an equation for the word sentence.

1. 18 more than a number is 29.

2. 5.2 times a number is 46.8.

3. 128 less than a number is 452.

4. Four fifths of a number equals 11.

5. The product of a number and 6 is 138.

6. The number of miles decreased by 29.8 is 139.

Name _____

1. Dora was born in 1981. Her son Tanner was born 25 years after Dora. Which equation could be used to find the year y in which Tanner was born?
 - (A) $y + 25 = 1981$
 - (B) $y - 25 = 1981$
 - (C) $y \times 25 = 1981$
 - (D) $y \div 25 = 1981$

2. During a school fundraiser, Dominic sold boxes of greeting cards for \$7 each and earned a total of \$364. Which equation could be used to find the number of boxes n Dominic sold?
 - (A) $n + 7 = 364$
 - (B) $n - 7 = 364$
 - (C) $n \times 7 = 364$
 - (D) $n \div 7 = 364$

3. A video game is on sale for \$40. The sale price is \$10 less than the regular price p . Which equation could be used to find the regular price of the video game?
 - (A) $p + 10 = 40$
 - (B) $p - 10 = 40$
 - (C) $p \times 10 = 40$
 - (D) $p \div 10 = 40$

4. Rowan started school in 1999. Kira started school 8 years after Rowan. Which equation could be used to find the year y in which Kira started school?
 - (A) $y - 8 = 1999$
 - (B) $y + 8 = 1999$
 - (C) $y \div 8 = 1999$
 - (D) $y \times 8 = 1999$

Problem Solving 

5. An ostrich egg weighs 2.9 pounds. The difference between the weight of this egg and the weight of an emu egg is 1.6 pounds. Write an equation that could be used to find the weight w , in pounds, of the emu egg.

6. In one week, the number of bowls a potter made was 6 times the number of plates. He made 90 bowls during the week. Write an equation that could be used to find the number of plates p that the potter made.

Write and solve an equation for each problem.

15. A calculator costs \$12. Ms. McConnell buys a calculator for each of her students. In total, she pays \$276. How many students does Ms. McConnell have? Let s = the number of students she has.

16. Aimee walks 4 blocks to the store. Then she walks to her grandfather's house. In total, she walks 11 blocks. How many blocks does Aimee walk from the store to her grandfather's house? Let b = the number of blocks.

17. Fernando puts a 44-cent stamp on a letter. He then puts another stamp on the letter. Altogether, the stamps are worth 61 cents. How much is Fernando's second stamp worth? Let v = the value of the second stamp.

18. Laney pays \$0.99 for each song she downloads from the Internet. In total, she paid \$24.75 for songs from the Internet. How many songs does Laney download? Use s = the number of songs.

Name _____

Lesson 67

COMMON CORE STANDARD CC.6.EE.8

Lesson Objective: Represent solutions of algebraic inequalities on number line diagrams.

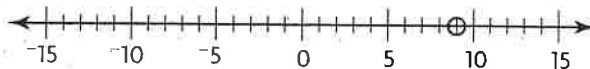
Graph Inequalities

You can graph the solutions of an inequality on a number line.

Graph the inequality $n \geq 9$.

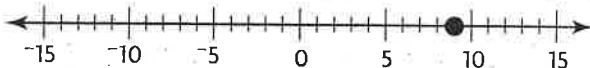
Step 1 Determine the meaning of the inequality.
 $n \geq 9$ means “ n is greater than or equal to 9.”

Step 2 Draw a number line and circle the number given in the inequality.



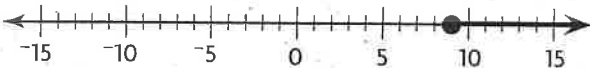
Step 3 Decide whether to fill in the circle.
For \leq or \geq , fill in the circle to show “or equal to.” For $<$ or $>$, do not fill in the circle.

Since the inequality uses \geq , 9 is a possible solution. So, fill in the circle.



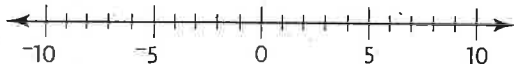
Step 4 Shade from the circle in the direction of the remaining solutions.

Since the inequality symbol is \geq , the shading covers all numbers greater than 9.

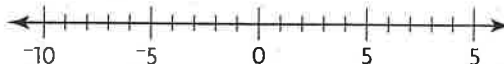


Graph the inequality.

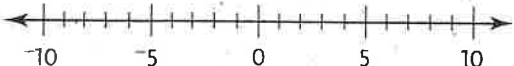
1. $k < 8$



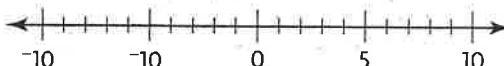
2. $r \geq 6$



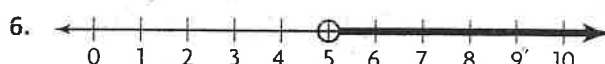
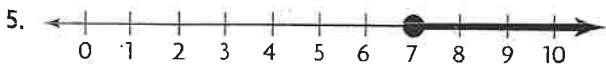
3. $w \leq 3$



4. $x > 3$

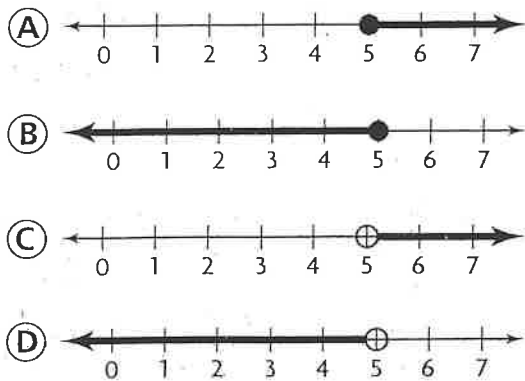


Write the inequality shown by the graph.

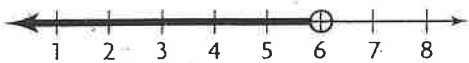


Name _____

1. The East Park football team must gain at least 5 yards for a first down. The inequality $y \geq 5$ represents the number of yards y that the team must gain. Which graph represents the solutions of the inequality?



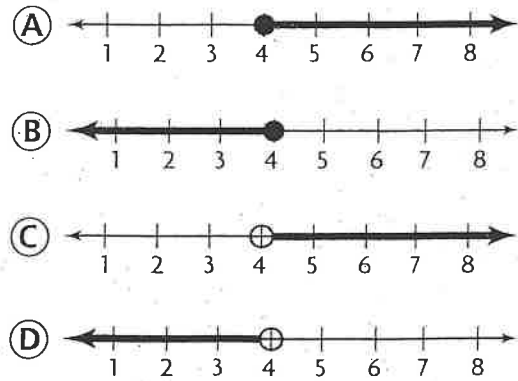
2. The graph shows the possible ages a of children in a daycare center.



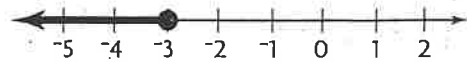
Which inequality represents this graph?

- (A) $a > 6$ (C) $a \geq 6$
 (B) $a < 6$ (D) $a \leq 6$

3. The inequality $a < 4$ represents the ages a of children who are admitted into the aquarium at no charge. Which graph represents the solutions of the inequality?



4. The graph shows the temperatures t in degrees Celsius for which a certain substance is frozen.



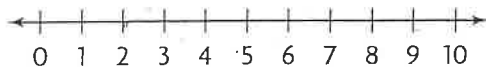
Which inequality represents this graph?

- (A) $t \leq -3$ (C) $t < -3$
 (B) $t \geq -3$ (D) $t > -3$

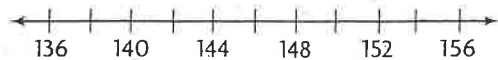
Problem Solving



5. The inequality $x \leq 2$ represents the elevation x of a certain object found at a dig site. Graph the solutions of the inequality on the number line.



6. The inequality $x \geq 144$ represents the possible scores x needed to pass a certain test. Graph the solutions of the inequality on the number line.

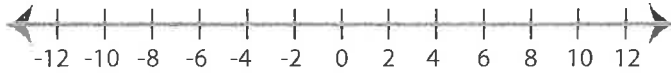


Solving & Graphing Inequalities

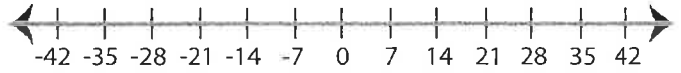
ES1

Solve each inequality and graph the solution.

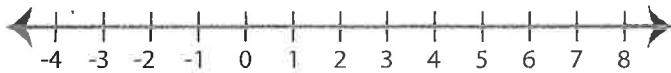
1) $x - 2 > 4$



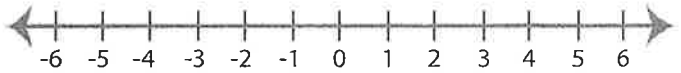
2) $\frac{x}{3} \leq 7$



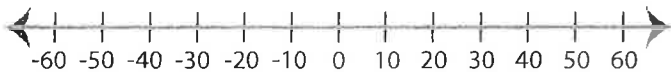
3) $6x < 30$



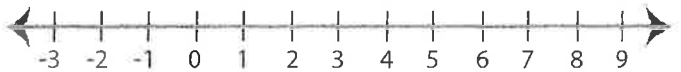
4) $x + 9 \geq 11$



5) $\frac{x}{2} \geq 10$



6) $x - 5 \leq 2$



7) $7 + x < 16$



8) $4x \geq 32$

