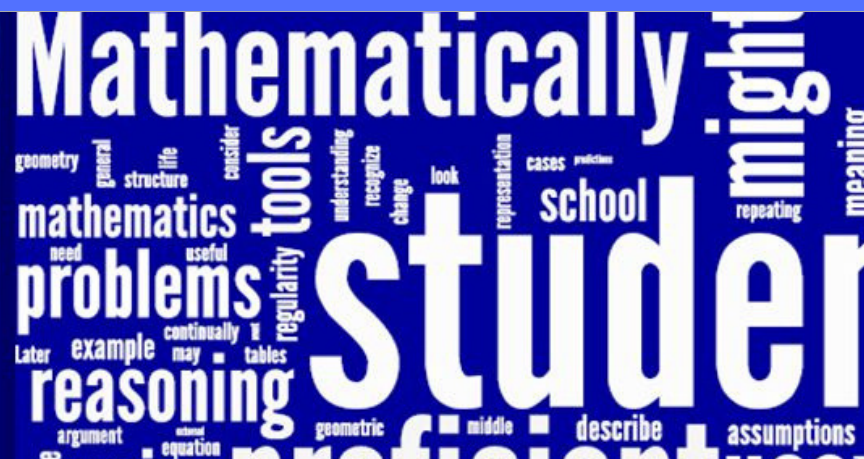


M IS FOR MATHEMATICS

NEWSLETTER FOR PARENTS OF 6TH GRADE MATH STUDENTS AT
WASHINGTON STEAM ACADEMY



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Topic A: Parent
Support

WELCOME TO WMS!

by John Davis

I hope your child finds a large amount of success through his math class this year. Throughout the school year, we will be sending out a digital newsletter in an effort to better communicate with parents about what is going on in the math classroom here at WMS. I hope you find it beneficial and it leads to higher success for your student.

Food for Thought

Did you know that struggle is good for your child to experience in learning? There are multiple pieces of research that support this thinking.

Check out this article from Jo Boaler talking about synapses firing in your brain when you get an answer wrong.

Mistakes Make the Brain Grow

KEY CONCEPT OVERVIEW

In the first topic of Module 1, students will become familiar with ratio language (how to describe ratios) and notation (how to write ratios, e.g., 3:2 or 7 to 15). They will learn how to identify equivalent ratios (e.g., 1:2, 2:4, and 4:8) and to solve problems with ratio values.

Examples include:

- Write ratios using correct ratio notation.
- Describe the ratio relationship.
- Write and identify equivalent ratios. (Students may use a tape diagram.)
- Define and determine the value of the ratio to determine whether ratios are equivalent.
- Solve word problems involving ratios.

SAMPLE PROBLEMS

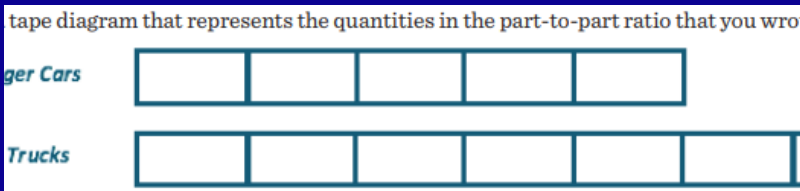
In the month of August, a total of 192 registrations were purchased for passenger cars and pickup trucks at the local Department of Motor Vehicles (DMV). The DMV reported that in the month of August, for every 5 passenger cars registered, there were 7 pickup trucks registered. How many of each type of vehicle were registered in the county in the month of August?

1. Using the information in the problem, write any two ratios and describe the meaning of each.

The ratio of cars to trucks is 5:7 and is a part-to-part ratio. The ratio of trucks to total vehicles is 7 to 12 and is a part-to-whole ratio.

SAMPLE PROBLEMS (cont.)

2. Make a tape diagram that represents the quantities in the part-to-part ratio that you wrote.



3. What value does each individual part of the tape diagram represent?

Divide the total quantity into 12 equal-sized parts:

$$192$$

$$12 = 1$$

4. How many of each type of vehicle were registered in August?

$5 \times 16 = 80$ There were 80 passenger cars registered in August.

$7 \times 16 = 112$ There were 112 pickup trucks registered in August.

HOW YOU CAN HELP AT HOME?

Determine and write the ratio for the number of cups of flour to the number of cups of sugar in a recipe that calls for 3 cups of flour and 1 cup of sugar. Use the ratio to determine the number of cups of flour needed if someone makes multiple batches using 6 cups of sugar (18). Ask your child to explain how to use a tape diagram to solve this problem.

■ Have your child make ratio cards by writing ratios (e.g., 2:5) on notecards or flashcards (one ratio per card). Show the cards one at a time, and ask your child to generate three equivalent ratios for each card (e.g., 4:10, 14:35, 20:50). For an added challenge, ask your child what the nonzero number c is for each set of equivalent ratios (2, 7, 10).

TERMS

Equivalent ratios: Ratios that have the same value; for example, 1:3, 2:6, and 3:9 are equivalent ratios.

Multiplicative comparisons: Comparisons that describe the relationship between two quantities in terms of multiples; for example, “twice as many apples as oranges” or “three times as many cats as chipmunks” are multiplicative comparisons.

Nonzero number c : The number that is multiplied by each part of the ratio to make an equivalent ratio.

Quantities: Amounts, or measurements, such as length, area, volume, and speed.

Quotient: The answer to a division problem.

Ratio: A statement of how two (nonzero) numbers compare. They can be written as $A:B$ or A to B .

Ratio relationship: The relationship between two quantities in a given setting; for example, sugar to butter in a recipe or paws to tails in the monkey house at the zoo. It is also the set of all ratios that are the same (equivalent). A ratio of 1:4, for example, can be used to describe ratio relationships (1:4, 2:8, 3:12) and can be represented by various models (ratio tables, double number line diagrams, and by equations and their graphs) as shown in the Models section.

Value of the ratio: For the ratio $A:B$, the value of the ratio is the quotient $A \div B$ where $B \neq 0$. For example, the ratio 6:10 has a value of $6 \div 10$ or 0.6.