



# MATH NEWS

## Grade 5 | Module 2 | Topic H | Measurement Division Word Problems

### Welcome

This document is created to give parents and students a better understanding of the math concepts found in the Eureka Math (© 2013 Common Core, Inc.) that is also posted in the Engage New York material taught in the classroom. Grade 5 Module 2 of Eureka Math (Engage New York) Multi-Digit Whole Number and Decimal Fraction Operations. This newsletter will focus on solving multi-step measurement word problems using multi-digit division.

### Words to Know

- Model/Tape Diagram
- Reasonableness
- Equation/Number Sentence
- Solution/Answer
- Units/Sections

### Objective of Topic H

Solve division word problems involving multi-digit division with group size unknown and the number of groups unknown.

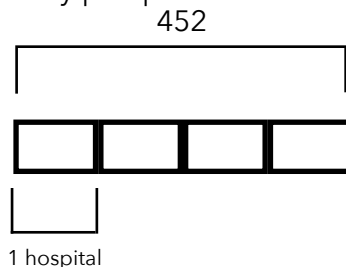
### Online Practice

Check out [www.zearn.com](http://www.zearn.com) for extra practice as well!

### Things to Remember

- **Tape Diagram:** Drawing that looks like a segment of tape, used to illustrate number relationships.

**Example:** There are 452 heat pamphlets that must be delivered to 4 hospitals. If each hospital receives the same amount, how many pamphlets are delivered to each hospital?



The whole diagram represents the 452 pamphlets. Since there are 4 hospitals, the diagram is divided into 4 units/sections. To find the value of 1 unit/section you would divide 452 by 4.

- **Approach to solving a problem:** Draw a **model**, write an **equation/number** sentence, compute, and assess the **reasonableness** of the **answer/solution**.

### Example Problems

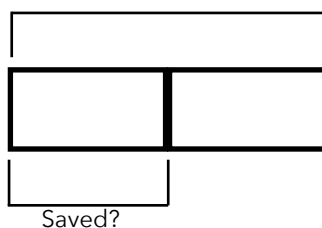
**Example 1:** Billy is saving for a 52 inch flat screen TV that cost \$1,218. He already saved half of the money. Billy earns \$14.00 per hour. How many hours must he work in order to save the rest of the money?

Step 1: **\$1218**



Step 2:

**\$1218**



**Draw a tape diagram** to represent \$1,218 which is the amount he needs to buy the TV. It is divided into 2 equal **units** since the problem states that he already saved half of the money.

To find out how much he already saved, we divide 1218 by 2.

**Equation:**

$$1218 \div 2 = 609$$

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Step 3:

\$1218

|          |          |
|----------|----------|
| \$609.00 | \$609.00 |
|----------|----------|

Saved  
\$609.00

How many  
hours does  
he need to  
work?

If half is equal to \$609.00, the the other half is equal to \$609.00.

Since he makes \$14.00 per hour, we want to find out how many 14s are contained in 609.

**Number Sentence:**  
 $609 \div 14 = 43.5$

**Solution/Answer:** Billy needs to work 43.5 more hours.

**Reasonableness:**

$$\begin{aligned} 609 \div 14 \\ \approx 600 \div 10 \\ = 60 \end{aligned}$$

OR

$$\begin{aligned} 609 \div 14 \\ \approx 600 \div 15 \\ = 40 \end{aligned}$$

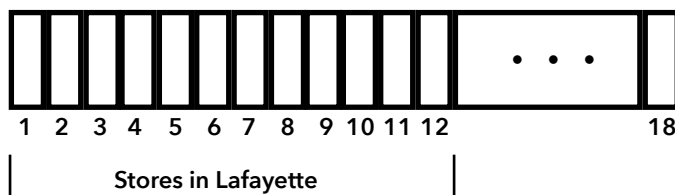
Student could round 14 to 10 and 60 is a multiple of 10. Since 14 is rounded down to 10, the answer will be less than the estimate.

Student knows the t15 is a factor of of 60 and 15 is very close to 14.

**Example 2:** Mr. Smith has 1354.5 kilograms of potatoes to deliver in equal amounts to 18 stores. 12 of the stores are in Lafayette. How many kilograms of potatoes will be delivered to stores in Lafayette?

Step 1:

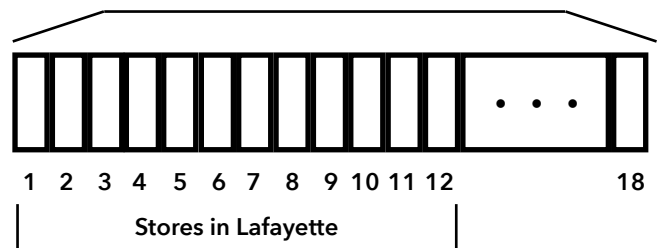
1354.5 kg of potatoes



The **tape diagram** drawn to represent the total kilograms of potatoes (1354.5 kg) that needs to be delivered to 18 stores. The three dots in the rectangle between 12 and 18 represent stores 13 to 17.

**Step 2:** The model is showing 18 units (equal sections) that equal 1354.5. We have to find the value of 2 **unit** or section.

1354.5 kg of potatoes



**Equation:**  $1354.5 \div 18 = 75.25$

*75.25 kg of potatoes delivered to each store.*

$$\begin{aligned} 1400 \div 20 \\ \approx (1400 \div 2) \div 10 \\ = 700 \div 10 \\ = 70 \end{aligned}$$

Assess the **reasonableness:**

Round the divisor: 18 rounds to 20  
13 is not a multiple of 2 but 14 is  
so our whole or dividend is 1400.

*We can conclude that 75.25 does make sense since it is close to 70.*

**Step 3:** Now that we know the kilograms of potatoes delivered at each store, we need to multiply 75.25 kg times 12 to determine how many kilograms of potatoes were delivered to the 12 stores in Lafayette.

**Equation:**  $75.25 \times 12 = 903$  kg

**Solution/Answer:** 903 kg of potatoes were delivered to 12 stores in Lafayette.

Assess the **reasonableness:**

When studying the model it is easy to see that more than half of the total amount of potatoes is being delivered to stores in Lafayette .903 is more than half.

**Flipped Learning:** A great way to review what your student is learning in the classroom. Visit the links to videos for each lesson in this topic.

**Lesson 28:** <https://www.youtube.com/watch?v=H01P2yfPgQE>

**Lesson 29:** <https://www.youtube.com/watch?v=v1QqIX3GnEM>

**Homework Help:** Check out the following website to get digital copies of homework, as well as detailed explanations in video format:  
[http://www.oakdale.k12.ca.us/cms/page\\_view?d=x&piid=&vpid=1401784829350](http://www.oakdale.k12.ca.us/cms/page_view?d=x&piid=&vpid=1401784829350)