

Math 7 Unit 4 Study Guide

Directions: Answer each question completely. Show ALL work to defend your answers.

1. Solve the proportion $\frac{x}{12} = \frac{25}{75}$ $12 \cdot 25 = 300$
 $300 \div 75 = 4$

2. Mr. Harrington drove 528 miles in 9 hours. What is his average rate of speed to the nearest (mph)?

$\frac{528 \text{ mi.}}{9 \text{ hrs}} = \frac{x}{1 \text{ hr}}$ $528 \cdot 1 = 528$
 $528 \div 9 = 58.6$
 59 mph

3. One batch of cookies requires two eggs and two and a half cups of flour. How many cups of flour are needed to make three and a half batches of cookies? Write and solve a proportion.

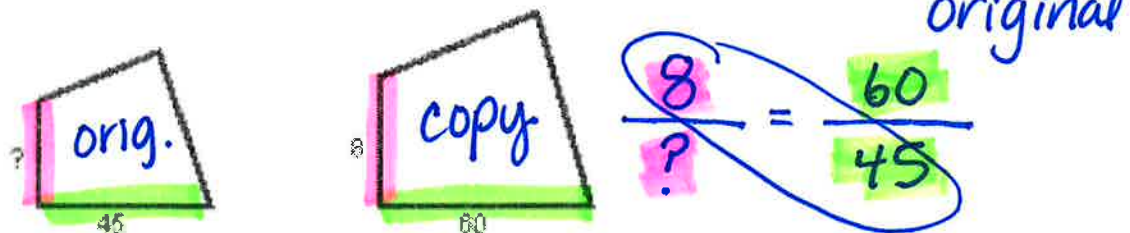
a. How much flour do we need? 8.75 or $8 \frac{3}{4}$ cups 3.5 batches
 $(3.5)(2.5) = 8.75 \div 1 = 8.75$ $2.5 \text{ cups} \times$

b. How many eggs should we use? 7 eggs 1 batch = 3.5 batches
 $(3.5)(2) = 7 \div 1 = 7$ $2 \text{ eggs} \times \text{eggs}$

4. According to the scale on a map, 1 inch on the map = 16 miles. How many inches on the map would represent 24 miles?

$\frac{1 \text{ inch}}{16 \text{ miles}} = \frac{x \text{ inches}}{24 \text{ miles}}$ $1(24) = 24$
 $24 \div 16 = 1.5 \text{ in}$

5. The shapes below are similar. Use proportions to solve for the variable and find the length of the missing side.



$8(45) = 360$
 $360 \div 60 = 6$

6. Jennifer babysat for 6 hours and earned \$43.50. What is her hourly rate of pay? Is this a proportional relationship? Why or why not? Create a table, a graph, and a rule to justify your answer. because...

$$\frac{6 \text{ hours}}{\$43.50} = \frac{1 \text{ hour}}{x}$$

$$43.50(1) =$$

$$\$43.50 \div 6$$

$$(\$7.25)$$

① Jennifer earns \$7.25 per hour.

② Yes, this is a proportional relationship because Jennifer earns \$7.25 for every hour that she babysit.

This is shown by the constant multiplier of 7.25 in my table and my rule.

In my graph, the data plotted forms a straight line that passes through the origin (0,0).



Rule: $y = \frac{7.25}{(x)} x$

Hours	Money (y) Earned
0×7.25	0
1×7.25	7.25
2×7.25	14.50
3×7.25	21.75
4×7.25	29
5×7.25	36.25
6×7.25	43.50