Get out the 2 worksheets that were homework and start checking your answers with the key below. Target Check on Monday!

Classwork - Writing and Solving Proportions

E)
$$\frac{4 \text{ meters}}{5 \text{ seconds}} = \frac{x}{55 \text{ seconds}}$$

$$\frac{220 = 5 \cdot x}{1 \cdot 5}$$

$$\frac{1}{5} = \frac{7 \text{ miles}}{x}$$

$$\frac{2 \text{miles}}{x} = \frac{7 \text{ miles}}{21 \text{ hours}}$$

$$\frac{42 = 7 \cdot x}{1 \cdot 6}$$

$$\frac{1}{5} = \frac{7 \text{ hours}}{x}$$

F)
$$\frac{4 eggs}{10 cups} = \frac{x}{25 cups}$$

$$0 = 10 \cdot x$$

$$10 = 10 \cdot x$$

$$10 = 10 \cdot x$$

$$10 = 2 \cdot x$$

$$10 = 2 \cdot x$$

$$2 = 2 \cdot x$$

$$2 = 27 \text{ girls}$$

$$2 = 27 \text{ girls}$$

$$2 = 27 \text{ girls}$$

$$30 \text{ yards}$$

$$2 = 126 \text{ yard}$$

$$2 = 27 \text{ girls}$$

$$30 \text{ yards}$$

$$2 = 126 \text{ yard}$$

$$2 = 27 \text{ girls}$$

$$30 \text{ yards}$$

$$2 = 126 \text{ yard}$$

$$2 = 27 \text{ girls}$$

$$30 \text{ yards}$$

$$1 = 27 \text{ girls}$$

$$2 = 27 \text{ girls}$$

$$3 = 27 \text{ girls}$$

$$4 = 27 \text{ girls}$$

$$3 = 27 \text{ girls}$$

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$$4 = 27 \text{ girls}$$

$$3 = 27 \text{ girls}$$

$$4 =$$

1) Solve the following proportions using cross multiplication. SHOW WORK. Make sure to label your final answer.

A)
$$\frac{235 \text{ miles}}{5 \text{ hours}} = \frac{x}{4 \text{ hours}}$$

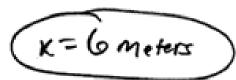
 $D)\frac{\$3.30}{4 \text{ packs}} = \frac{a}{10 \text{ packs}}$

$$B) \frac{16 \text{ cats}}{12 \text{ dogs}} = \frac{12 \text{ cats}}{y}$$

E)
$$\frac{12 \text{ boys}}{20 \text{ total people}} = \frac{18 \text{ boys}}{b}$$

C)
$$\frac{\$30}{4 \text{ hours}} = \frac{z}{7 \text{ hours}}$$

F)
$$\frac{4.5 \text{ meters}}{6 \text{ seconds}} = \frac{x}{8 \text{ seconds}}$$



Writing Proportions

The following problems deal with rates and proportions. In order to be successful on them, you need to:

- A) Identify the full rate (comparison of 2 numbers) being described in the problem
- B) What additional information you have > write this in the appropriate place of a new rate
- C) What information you are missing → write an "x" in that place to show we don't know the number
- D) Use what you know about equal rates to find what you can multiply or divide by to connect the rates together.

Example:

Hailey earns \$35 for 5 hours of work. How much would she earn for working 7 hours?

Rate described in problem

What do we know about missing rate?

5 hours Thours

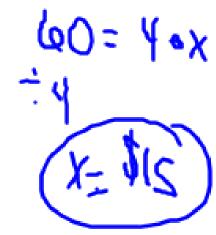
2 • x = 342

3) Erica to spent \$6 on 4 postcard. How much would 10 postcards cost?

Rate described in problem

What do we know about missing rate?

4 Postcards - 10 Pistcards



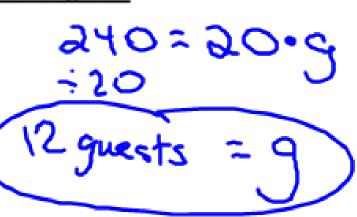
4) Brandon's birthday party will cost \$20 if he invites 10 guests. How many guests can there be, at most, if Brandon can afford to spend a total of \$24 on his birthday party? Assume the relationship is directly proportional.

Rate described in problem

What do we know about missing rate?

10 guests

\$24



Follow the directions in the box and fill in the missing information.

A) $\frac{\$60}{3 \text{ weeks}} = \frac{\$100}{5 \text{ weeks}}$ $\frac{\$60}{5 \text{ weeks}} = \frac{\$00}{5 \text{ weeks}}$

For A and B, I want you to multiply the numbers that are diagonal to one another.

This is called _______ multiplying OR finding the ______ product.

B) $\frac{\$100}{5 \text{ weeks}} = \frac{\$160}{8 \text{ weeks}}$

When you cross-multiply the numbers in a proportion, what should be true about the products?

Find a Missing Value using Cross-Product and Cross Multiplication

Example on how to solve for a variable

A) Look at the proportion and decide what you are going to multiply (circle the numbers diagonally if that helps)

$$\frac{3}{x} = \frac{12}{16} \qquad \Rightarrow \qquad \frac{3}{x} = \frac{12}{6}$$

B) Multiply the numbers/variables diagonal to one another

$$12 \cdot x = 3 \cdot 16$$

C) Simplify the equation

$$12 \cdot x = 48$$

D) To undo multiplication → Divide

$$\frac{48}{12} = 4$$

E) Do a Quick Check you answer by cross multiplying

If
$$x = 4$$

$$\frac{3}{4} = \frac{12}{16}$$

If x = 4 $\Rightarrow \frac{3}{4} = \frac{12}{16}$ If I cross multiply

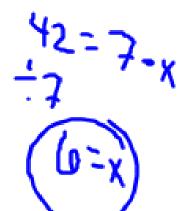


Does $12 \cdot 4 = 3 \cdot 16$ 48 = 48 YES

2) Solve the following proportions using cross multiplication. SHOW WORK

B)
$$\frac{3}{x} = \frac{12}{16}$$

C)
$$\frac{2}{x} = \frac{7}{21}$$



D)
$$\frac{6}{9} = \frac{2}{x}$$

E)
$$\frac{4}{5} = \frac{x}{55}$$

F)
$$\frac{4}{10} = \frac{x}{25}$$

3) Can you create <u>2 equal ratios (a proportion)</u> for the problem below? SHOW WORK on whether or not they are equal by multiplying or dividing sideways or vertically.

FITNESS Jessica can do 60 jumpingjacks in 2 minutes. Juanita can do 150 jumping-jacks in 5 minutes. Are these rates proportional? Explain your reasoning.

SURVEY One school survey showed that 3 out of 5 students own a pet. Another survey showed that 6 out of 11 students own a pet. Are these results proportional? Explain your reasoning. 4) Jackson baked 15 cookies with 3 scoops of flour. How many scoops of flour does Jackson need in order to bake 50 cookies? Assume the relationship is directly proportional.

5) Cory is buying seeds to plant a garden. If she buys 2 packs, she will have 40 seeds. How many packs would she need to buy to have 180 seeds?

6) Max can type $\frac{1}{3}$ of a page is 2 minutes. How many pages can he type in 6 minutes?

7) When solving proportions, all the labels need to be the same for both. Rewrite the ratios below so they use the same units (example: both ratios have seconds or minutes, etc.) Then use cross multiplication to solve the proportion for the variable. 725+2+24

$$\frac{8 \text{ yards}}{5 \text{ seconds}} = \frac{72 \text{ feet}}{x}$$