Homework

Unit 3 · Lesson 11: Proportional Relationships: Solve Equations

Name: _____

Date: _____

Objective: *I will find unit rates and solve proportional equations.*

Vocabulary

Inverse Operations: operations that undo each other; the opposite operation

Addition ⟺ *Subtraction*
Multiplication ⟺ *Division*

Isolate Variables: to get a variable alone on one side of the equation; use inverse operations to isolate variables

Proportional Equation:

$y = kx$

y is directly proportional to x
k is the Constant of Proportionality

Steps:

1. Isolate each variable. Use inverse operations to find unit rate.
2. Label the x, y, and k in your unit rate equation.
3. Plug values into the equation.

Example # 1	Example # 2
Directions: Find the unit rate for both variables in $y = kx$ form. Solve for the given variable.	
$4a = 8b$ **Unit rates:** If $b = 3$, then $a = ?$ If $a = 7$, then $b = ?$ **Solution:** Since the value of a is double b, which also means b is half of a, if $b = 3$, then $a = 6$. If $a = 7$, then $b = 3\frac{1}{2}$.	$\frac{2}{3}g = \frac{1}{5}h$ **Unit rates:** If $h = 5$, then $g = ?$ If $g = 9$, then $h = ?$ **Solution:** Since the value of g is $\frac{3}{10}$ of h and h is $3\frac{1}{3}$ times g, then if $h = 5$, then $g = 1\frac{1}{2}$. If $g = 9$, then $h = 30$.

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Directions: Find the unit rate for both variables in $y = kx$ form. Solve for the given variable.

1. $2x = 5y$ **Unit rates:** If $x = 3$, then $y = ?$ If $y = 12$, then $x = ?$	2. $24a = 6b$ **Unit rates:** If $a = 6$, then $b = ?$ If $b = 10$, then $a = ?$
3. 4 families = 12 children **Unit rates:** If families = 10, then children = ? If children = 42, then families = ?	4. $\frac{3}{4}k = \frac{2}{5}c$ **Unit rates:** If $k = 6$, then $c = ?$ If $c = 8$, then $k = ?$
5. $6b = 4\frac{1}{4}z$ **Unit rates:** If $b = 15$, then $z = ?$ If $z = 20$, then $b = ?$	6. $2\frac{1}{3}p = 1\frac{1}{2}q$ **Unit rates:** If $p = 25$, then $q = ?$ If $q = 3$, then $p = ?$

Explain the steps you used to solve problem number _____.

_____

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