Name: Key Summative Date: _____

Expression and Equations Part Two Summative Review Guide

Domain: Expressions and Equations

- I can use variables to represent numbers and write expressions when solving a real-world or mathematical problem.
- I can solve real-world and mathematical problems by writing and solving equations.
- I can represent and analyze quantitative relationships between dependent and independent variables.

Directions: Solve the following equations to determine the value of the given variable. Show all work!

1.) $\frac{7q}{7} = \frac{63}{7}$ $q = 9$

2.) $98 = d + 34$
$-34 \quad -34$
$64 = d$

3.) $13 = \frac{y}{5} \cdot 5$
$65 = y$
$\times 13 \times 5$
65

4.) $h - 18 = 54$
$+18 \quad +18$
$h = 72$

* Look at what operation is being done, then do the inverse op. on both sides to isolate the variable and balance the equation.

5.) $6m - m = 35$
combine like terms
$\frac{5m}{5} = \frac{35}{5}$
$m = 7$

6.) $p + 1.2 = 3.47$
$-1.2 \quad -1.20$
$p = 2.27$

Directions: Read the following situations and write an equation to represent each. Then, solve to determine the value of the variable.

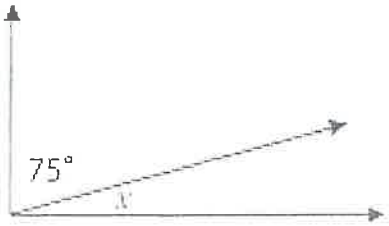
7.) Dominic wants to find the measure of the missing angle. He knows that the sum (+) of the two angles is equivalent to the measure of a right angle. 90°

a.) Write an equation to represent this situation. $75 + x = 90$

must show addition b/c key word is sum!

b.) Using your equation, solve for the measurement of the missing angle, ***x***.

$15°$



$75 + x = 90$
$-75 \quad -75$
$x = 15°$

speed / rate

8.) A cruise ship is traveling to the island of Cozumel, Mexico. The ship is moving at 23 miles per hour towards the island.

distance = speed × time OR speed = distance / time OR time = distance / speed

a.) Write an equation to represent the relationship between the distance traveled, *d*, and the time, *t*.

$d = 23t$

b.) Identify the independent variable: time

* time is constantly changing!

c.) Identify the dependent variable: distance (miles)

Distance traveled depends on how long the ship is cruising.

d.) Using your equation, solve for the distance traveled after 24 hours. $t = 24$

$d = 23(24)$

23×24: 92 + 46 = 552

$d = 552$

552 miles

e.) Using your equation, solve for the time when the cruise ship has traveled 184 miles. $d = 184$

$\frac{184}{23} = \frac{23t}{23}$

$23\overline{)184}$: -184, 0

$t = 8$

8 hours

Label!

9.) Nancy has half as many books in her collection as Cassie does.

a.) Write an equation to represent the relationship between the number of books Nancy has, *n*, and the number of books Cassie has, *c*.

n = half of c

$n = \frac{c}{2}$ or could be $n = \frac{1}{2}c$

b.) Using your equation, solve for the number of books Cassie has when Nancy has 32. $n = 32$

$2 \cdot 32 = \frac{c}{2} \cdot 2$

$c = 64$

Cassie has 64 books

c.) Using your equation, solve for the number of books Nancy has when Cassie has 24. $c = 24$

$n = \frac{24}{2}$

$n = 12$

Nancy has 12 books

Directions: Read each situation and identify the independent and dependent variable. Then, write an equation to show the relationship between the two variables.

unit rate

Multiplication is op., so .75 is coefficient to variable for "hours"

10.) A parking lot charges an entrance fee of $1.25 and $.75 for each hour parked.

a.) Write an equation relating the total cost, *c*, to the number of hours parked, *h*.

$1.25 + .75h = c$

b.) Identify the independent variable: number of hours parked

(can be changed... may park 1 hour, or 2 or 8)

c.) Identify the dependent variable: total cost

(by itself on one side of equal sign)

11.) Aliyah wanted to start saving money to buy a car. She started with $100 and wanted to add $50 per month to her savings.

unit rate = 50 • month

a.) Write an equation relating the number of months, *m*, to her total savings, *s*.

$s = 100 + 50m$

b.) Identify the independent variable: number of months (time)

c.) Identify the dependent variable: total savings

total Aliyah saves depends on how many months she saves for.

12.) A cyclist is traveling at a constant rate of 16 miles per hour on his bike.

unit rate

a.) Write an equation relating the distance traveled, *d*, to the time in hours, *t*.

$d = 16t$

b.) Identify the independent variable: time (hour)

c.) Identify the dependent variable: distance (miles)

distance depends on how long (time) the cyclist has traveled.

13.) At the local Starbucks they brew 15 pounds of coffee per hour. Write an equation where *c* represents the total amount of coffee brewed (in pounds) and *h* represents the time in hours. Determine the independent and dependent variable in this situation. Create a table to show the different quantities of coffee brewed after 1 – 6 hours and then graph this relationship.

unit rate

a.) Equation: $15h = c$

b.) Independent variable: time (hours)

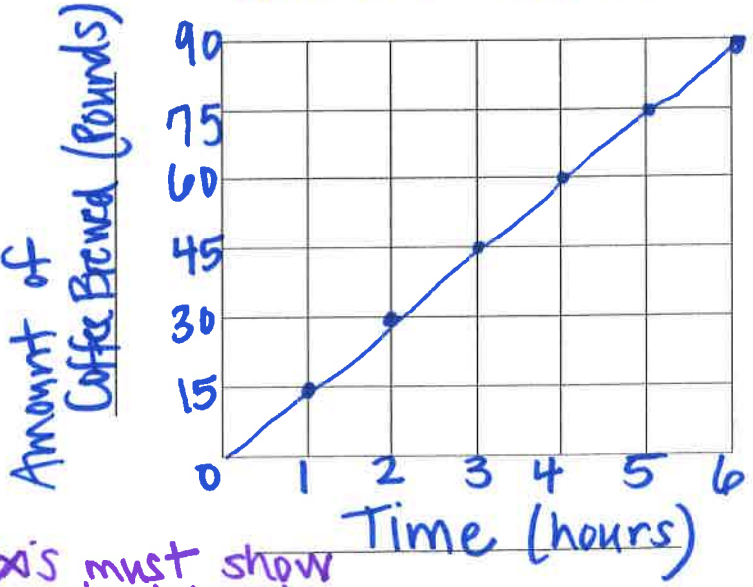
c.) Dependent variable: total coffee brewed (pounds)

*Don't forget titles!

Starbucks Coffee Brewed

Time in hours (h)	Total coffee brewed (c) (pounds)
1	15
2	30
3	45
4	60
5	75
6	90

evaluate 15h=c by substituting these values



Axis must show equal intervals

14.) Timmy and Jimmy decide to save their money after shoveling their neighbors' driveways.

- Timmy started off with $8 dollars from his savings, and charges his customer's $9 for each driveway he shoveled. 8+ unit rate 9d
- Jimmy began his savings by charging $10 for each driveway he shoveled. unit rate 10d

a.) Fill in the table to show how much each boy would save after shoveling 10 driveways.

Driveways Shoveled	0 started	1	2	3	4	5	6	7	8	9	10
Timmy's savings	8	17	26	35	44	53	62	71	80	89	98
Jimmy's savings	0	10	20	30	40	50	60	70	80	90	100

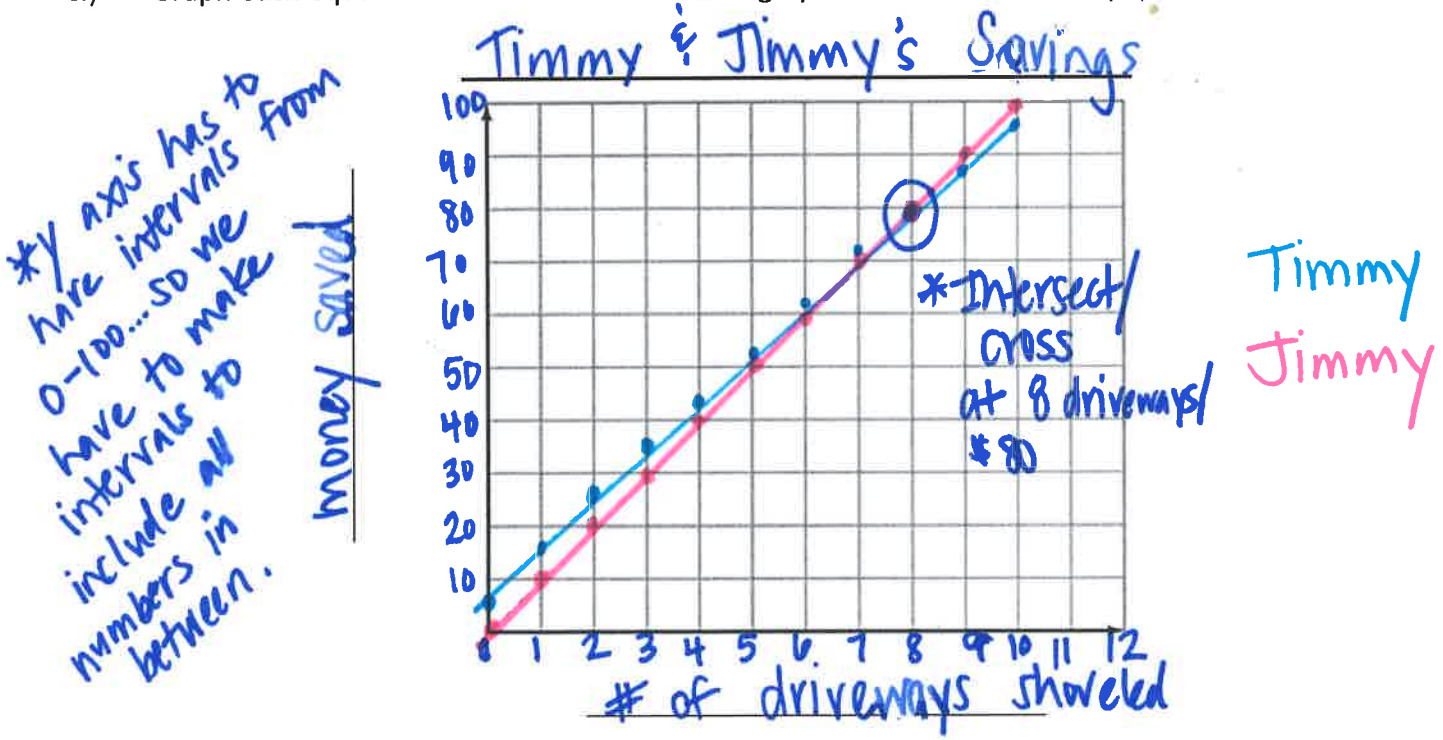
Same!

b.) Write an equation that represents the relationship between the amount of money, ***m***, each boy has in their savings after shoveling ***d*** driveways.

Timmy: $m = 8 + 9d$

Jimmy: $m = 10d$

c.) Graph each equation. Use a different color to graph the data for each boy. (Be sure to label the axes!)



d.) Will the boys ever have the same amount of money at the same time? _____

Explain your reasoning. _____

yes! After shoveling 8 driveways each, they will both have $80 saved.