Algebra 2 Bellwork Thursday, January 14, 2016

Direct Variation: Constant Ratio. $k = \frac{y}{x}$

Inverse Variation: Constant Product. $k = xy$

1. Is each table below an example of Direct Variation (DV), Inverse Variation(IV) , or neither(N)? If yes, state the variation constant and write a direct variation equation.

a)DV, IV or neither?_____

X	Y
−6	7.5
4	−5
8	−10
14	−17.5

If a variation, $k =$ _____
If Yes, equation is:

b)DV, IV or neither?_____

X	Y
−8	−15
−2.5	−48
24	5
32	3.75

If a variation, $k =$ _____
If Yes, equation is:

c)DV, IV or neither?_____

X	Y
−3	−7.2
5	12
8	19.2
18	7.5

If a variation, $k =$ _____
If Yes, equation is:

d)DV, IV or neither?_____

X	Y
−15	−12
−6	−4.8
12	−9.6
25	20

If a variation, $k =$ _____
If Yes, equation is:

2. This table demonstrates a Direct Variation relationship. Find the values of X and Y.

X	Y
−5	−13.5
X	35.1
21	56.7
33	Y

X = _____ Y = _____

3. This table demonstrates an Inverse Variation relationship. Find the values of X and Y.

X	Y
−15	−19.2
X	−36
7.5	38.4
24	Y

X = _____ Y = _____

#'s 4 and 5 are on the back.

4. The number of gallons of paint used varies directly with the number of feet of fencing being painted. 6 gallons of paint was used to paint 111 feet of fencing.

a) State the variation constant, include units. _____

b) Write a direct variation equation. Define your variables.
EQ: Variables:

c) How many gallons of paint will be needed to paint 250 feet of fencing? _____

5. At a jobsite, 10 men can do the job in 30 days.

a) Write an Inverse Variation equation. Define your variables.
EQ: Variables:

b) How many days it will take if 15 men do the same job?

Algebra 2 Bellwork Thursday, January 14, 2016 ANSWERS

Direct Variation: Constant Ratio. $k = \frac{y}{x}$

Inverse Variation: Constant Product. $k = xy$

1. Is each table below an example of Direct Variation (DV), Inverse Variation(IV) , or neither(N)? If yes, state the variation constant and write a direct variation equation.

a)DV, IV or neither? DIRECT VARIATION

X	Y	y/x
−6	7.5	−1.25
4	−5	−1.25
8	−10	−1.25
14	−17.5	−1.25

If a variation, $k =$ −1.25

If Yes, equation is: $y = -1.25x$ or $\frac{y}{x} = -1.25$

b)DV, IV or neither? INVERSE VARIATION

X	Y	xy
−8	−15	120
−2.5	−48	120
24	5	120
32	3.75	120

If a variation, $k =$ 120

If Yes, equation is: $xy = 120$ or $y = \frac{120}{x}$

c)DV, IV or neither? Neither

X	Y	xy	$\frac{y}{x}$
−3	−7.2	21.6	
5	12	60	FIRST 3 ratios are >1
8	19.2	X	
18	7.5		← this ratio is <1

If a variation, $k =$ _____

If Yes, equation is:

d)DV, IV or neither? Neither

X	Y
−15	−12
−6	−4.8
12	−9.6
25	20

pos if do either $\frac{y}{x}$ or xy

→ neg if do either $\frac{y}{x}$ or xy

If a variation, $k =$ _____

If Yes, equation is:

2. This table demonstrates a Direct Variation relationship. Find the values of X and Y.

X	Y
−5	−13.5
X	35.1
21	56.7
33	Y

use a Direct Variation EQ or use a proportion

X = 13

$y = 2.7x$

$\frac{35.1}{2.7} = \frac{2.7x}{2.7}$

Y = 89.1

$\frac{-13.5}{-5} = \frac{y}{33}$

$k = \frac{-13.5}{-5} = 2.7$

$y = 2.7x$

3. This table demonstrates an Inverse Variation relationship. Find the values of X and Y.

X	Y
−15	−19.2
X	−36
7.5	38.4
24	Y

$k = xy = (-15)(-19.2) = 288$

X = −8

$\frac{x(-36)}{-36} = \frac{288}{-36}$

$x = -8$

Y = 12

$\frac{(24)y}{24} = \frac{288}{24}$

$y = 12$

#'s 4 and 5 are on the back.

Y X

4. The number of gallons of paint used varies directly with the number of feet of fencing being painted. 6 gallons of paint was used to paint 111 feet of fencing.

a) State the variation constant, include units. $\frac{6}{111}$ gal/ft

≈ 0.05 gal/ft

$k = \frac{y}{x} = \frac{\text{gal}}{\text{ft}} = \frac{6\text{ gal}}{111\text{ ft}}$

b) Write a direct variation equation. Define your variables.

EQ:

$y = 0.05x$

or

$y = \frac{6}{111}x$

Variables:

$y =$ # gal of paint

$x =$ # ft of fencing

c) How many gallons of paint will be needed to paint 250 feet of fencing? 14

use eq:

$y = 0.05(250)$

12.5 gal

x

USE a proportion

$\frac{6\text{ gal}}{111\text{ ft}} = \frac{y\text{ gal}}{250\text{ ft}}$

$y = 13.5$ gal

5. At a jobsite, 10 men can do the job in 30 days.

a) Write an Inverse Variation equation. Define your variables.

EQ:

$xy = 300$

$k = xy = 10(30)$

$k = 300$

Variables:

$x =$ # men

$y =$ # days

b) How many days it will take if 15 men do the same job?

x

$xy = 300$

$15y = 300$

$y = 20$ days