1. Does each table represent Direct Variation, Inverse Variation, or Neither?
If it represents a variation write a variation equation then find x when $y = 125$

a)

X	Y
−12	45.6
−4.5	17.1
2.4	−9.12
8	−30.4
25	−95

If Variation,
what kind?

If Variaiton,
Equation:

If Variation,
$x = ?$ when $y = 125$

b)

X	Y
−12	−20
−10	−24
5	48
8	−30
40	6.5

If Variation,
what kind?

If Variaiton,
Equation:

If Variaiton,
$x = ?$ when $y = 125$

c)

X	Y
−15	24
−4.5	80
2.5	−144
20	−18
720	−0.5

If Variation,
what kind?

If Variaiton,
Equation:

If Variaiton,
$x = ?$ when $y = 125$

2. The number of air conditioners (AC's) built varies directly with the number of workers at the factory. When there are 120 workers on the job 270 AC's are manufactured.
a. State the variation constant, including units.

b. Find the number of AC's that can be made if there are 140 workers present.

3. Mark drives to his cottage on the lake each weekend. The amount of time it takes him to make the drive varies inversely with the speed at which he travels. Last week he drove 55 mph and it took 4.8 hours.
a. State the variation constant, including units.

b. How fast will he need to drive if he has to get there in 4 hours?

Bellwork   Alg 2A   Monday, May 15, 2017   *Answers*

1. Does each table represent Direct Variation, Inverse Variation, or Neither?
If it represents a variation write a variation equation then find x when $y = 125$

a)

X	Y	$\frac{y}{x}$
−12	45.6	−3.8
−4.5	17.1	−3.8
2.4	−9.12	−3.8
8	−30.4	−3.8
25	−95	−3.8

If Variation, what kind?

DIRECT

If Variaiton, Equation:

$$y = -3.8x$$
or $\frac{y}{x} = -3.8$

If Variation, $x = ?$ when $y = 125$

$$x = -32.89$$

b)

X	Y
−12	−20
−10	−24
5	48
8	−30
40	6.5

Neither

If Variation, what kind?

✗

If Variaiton, Equation:

✗

If Variaiton, $x = ?$ when $y = 125$

✗

c)

X	Y	xy
−15	24	−360
−4.5	80	−360
2.5	−144	−360
20	−18	−360
720	−0.5	−360

If Variation, what kind?

INVERSE

If Variaiton, Equation:

$$xy = -360 \quad \text{or} \quad y = \frac{-360}{x}$$

If Variaiton, $x = ?$ when $y = 125$

$$x = -2.88$$

2. The number of air conditioners (AC's) built varies directly with the number of workers at the factory. When there are 120 workers on the job 270 AC's are manufactured.
a. State the variation constant, including units.

$$k = 2.25 \ \text{AC's}/\text{worker}$$

$$k = \frac{\#AC's}{\#workers} = \frac{270}{120}$$

b. Find the number of AC's that can be made if there are 140 workers present.

$$y = 2.25x$$
$$2.25(140)$$

or

$$\frac{120 \ workers}{270 \ AC's} = \frac{140 \ workers}{x}$$

$$\boxed{315 \ AC's}$$

3. Mark drives to his cottage on the lake each weekend. The amount of time it takes him to make the drive varies inversely with the speed at which he travels. Last week he drove 55 mph and it took 4.8 hours.
a. State the variation constant, including units.

$$xy = (55mph)(4.8hrs)$$

$$\boxed{k = 264 \ miles}$$

b. How fast will he need to drive if he has to get there in 4 hours?

$$4x = 264$$

$$\boxed{66 \ mph}$$