Bellwork Hon Alg2 Friday, February 3, 2017

1. Does each table represent Direct Variation, Inverse Variation, or Neither?

a)

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

b)

X	Y
−12	−20
−10	−24
5	48
8	−30
40	6.5

c)

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

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?

4. The graph of an Inverse Variation relationship passes through the point $(5, 24)$. Find another point that could be on this graph.

5. The graph of a Direct Variation relationship passes through the point $(20, -15)$. Find another point that could be on this graph.

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Answers

1. Does each table represent Direct Variation, Inverse Variation, or Neither?

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

DIRECT

b)

X	Y	$\frac{Y}{X}$ or XY
−12	−20	Pos
−10	−24	Pos
5	48	Pos
8	−30	NEG
40	6.5	

Neither

c)

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

INVERSE

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. (y = air conditioners, x = number of workers)

a. State the variation constant, including units.

$k = \frac{Y}{X} = \frac{\#\text{ AC's}}{\#\text{ workers}} = \frac{270\text{ ACs}}{120\text{ workers}} =$ 2.25 ACs per worker

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

$y = 2.25X$

$y = 2.25(140) =$ 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.

x = speed (mph) y = time (hrs)

a. State the variation constant, including units.

$k = x \cdot y = (55)(4.8) =$ 264 miles

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

$x(4) = 264$

$x =$ 66 mph

4. The graph of an Inverse Variation relationship passes through the point (5,24). Find another point that could be on this graph.

$k = (5)(24) = 120$

any 2 #'s that multiply to 120 would represent another point on this graph

ex: (12,10)

5. The graph of a Direct Variation relationship passes through the point (20,−15). Find another point that could be on this graph.

$k = \frac{-15}{20} = -.75 = \frac{Y}{X}$

any 2 #'s with a ratio of −.75 would represent another point on this graph → Y is the numerator

ex: (4,−3)