Algebra 2 Bellwork Friday, January 15, 2016

1. Q varies jointly with the A and the cube of B and inversely with the square of C. $Q = 57.6$ when $A = 6$, $B = 4$, and $C = 5$

a) Write a variation equation with the value of k rounded to the nearest hundredth as necessary.

b) Find the value of B when $Q = 750$, $A = 10$, and $C = 8$. Round to the nearest hundredth as necessary.

2. P varies directly with the square of H and inversely with the product of T and W. $P = 19.2$ when $H = 8, T = -2$, and $W = 6$

a) Write a variation equation with the value of k rounded to the nearest hundredth as necessary.

b) Find the value of W when $P = 120, H = 5, T = 18$

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

4. 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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ALG 2 Bellwork Answers Fri 1-15-16

(1) a) $Q = \frac{kAB^3}{C^2} \rightarrow 57.6 = \frac{k(6)(4)^3}{(5)^2} \rightarrow k = 3.75$

$$Q = \frac{3.75AB^3}{C^2}$$

b) $750 = \frac{3.75(10)B^3}{8^2} \rightarrow 750 = \frac{37.5B^3}{64}$

$48{,}000 = 37.5B^3$

$B^3 = \frac{48{,}000}{37.5}$

$B = \sqrt[3]{\frac{48{,}000}{37.5}}$

$B = 10.86$

(2) a) $P = \frac{kH^2}{TW} \rightarrow 19.2 = \frac{k(8)^2}{(-2)(6)} \rightarrow k = -3.6$

$$P = \frac{-3.6H^2}{TW}$$

b) $120 = \frac{-3.6(5)^2}{18W}$ $\quad 120 = \frac{-90}{18W}$

cross mult: $-90 = (120)(18W)$

$-90 = 2160W$

$W = -0.04$

(3) $k = 5 \cdot 24 = 120$

Any point whose x & y coordinates have a product of 120 will be on this graph

(4) $k = \frac{-15}{20} = -.75$

The origin must be on this graph as well as any point whose x & y coordinates have the following ratio $\frac{Y}{X} = -.75$