Bellwork Hon Alg 2 Monday, February 6, 2017

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. Suppose that T varies directly with S and inversely with the square of R.

a) How does the value of T change when the value of S is doubled?

b) How does the value of T change when the value of R is doubled?

Bellwork Hon Alg 2 Monday, February 6, 2017 ANSWERS

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 $C = 5$ $\quad Q = k\frac{AB^3}{C^2}$

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

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

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

$750 = 3.75\frac{(10)B^3}{8^2}$ $\quad B = 10.86$

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 $W = 6$ $\quad P = k\frac{H^2}{TW}$

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

$P = -3.6\frac{H^2}{TW}$ $\quad 19.2 = k\frac{(8)^2}{(-2)(6)}$ $\quad k = -3.6$

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

$120 = \frac{-3.6(5)^2}{18W} \rightarrow \frac{120}{1} = \frac{-90}{18W} \rightarrow -90 = 2160W$

$W = -0.04$

3. Suppose that T varies directly with S and inversely with the square of R.

a) How does the value of T change when the value of S is doubled?

T is doubled $\quad T = k\frac{S}{R^2}$

b) How does the value of T change when the value of R is doubled?

T is 1/4 as big → reduced by a factor of 4