

Combined Variation EXTRA Problems for TEST REVIEW:

HONORS MATH 2

1. z varies directly with x and inversely with y. When x = 6, y = 2 and z = 15. Find z when x = 4 and y = 9
2. z varies directly with square of x and inversely with y. When x = 2, y = 4 and z = 3. Find z when x = 4 and y = 9
3. The time to paint a fence varies directly with length of the fence and inversely with the number of painters. If it takes 5 hours to paint 200 feet of fence with 3 painters, how long will it take 5 painters to paint 500 feet of fence?
4. The strength of a rectangular beam varies jointly with width and square of its depth. If the strength of the beam 3 inches wide by 10 inches deep is 1200 pounds per square inch, what is the strength of the beam 4 inches wide and 6 inches deep?

Combined Variation EXTRA Problems for TEST REVIEW:

HONORS MATH 2

1. z varies directly with x and inversely with y. When x = 6, y = 2 and z = 15. Find z when x = 4 and y = 9

$1) z = \frac{Kx}{y}$
 $2) 15 = \frac{K \cdot 6}{2}$
 $3) z = \frac{5x}{y}$
 $4) z = \frac{5 \cdot 4}{9} = \frac{20}{9} = 2\frac{2}{9}$

$5 = K$

2. z varies directly with square of x and inversely with y. When x = 2, y = 4 and z = 3. Find z when x = 4 and y = 9

$1) z = \frac{Kx^2}{y}$
 $2) 3 = \frac{K \cdot 2^2}{4}$
 $3) z = \frac{3x^2}{y}$
 $4) z = \frac{3 \cdot 4^2}{9} = \frac{48}{9} = \frac{16}{3} = 5\frac{1}{3}$

$3 = K$

3. The time to paint a fence varies directly with length of the fence and inversely with the number of painters. If it takes 5 hours to paint 200 feet of fence with 3 painters, how long will it take 5 painters to paint 500 feet of fence?

$1) t = \frac{Kl}{n}$
 $2) 5 = \frac{K \cdot 200}{3}$
 $3) t = \frac{.075l}{n}$
 $4) t = \frac{.075(500)}{5}$

$.075 = K$ (implies directly)

$t = 7.5 \text{ hours}$

4. The strength of a rectangular beam varies jointly with width and square of its depth. If the strength of the beam 3 inches wide by 10 inches deep is 1200 pounds per square inch, what is the strength of the beam 4 inches wide and 6 inches deep?

$1) S = Kwd^2$
 $2) 1200 = K \cdot 3 \cdot 10^2$
 $3) S = 4wd^2$
 $4) S = 4 \cdot 4 \cdot 6^2$

$1200 = K \cdot 3 \cdot 100$

$1200 = K \cdot 300$

$S = 576 \text{ pound per sq. inch}$