

#3 Inverse Variations

1/28/14

$$y = \frac{k}{x}$$

Solve for k

$$yx = k$$

k is the constant
of proportionality
CoP

Real Life examples

$$C = \frac{200}{n}$$

* the cost of a party is inversely proportional to the # of people attending with CoP 200.

* the speed of the racecar varies inversely to the time it takes to run the Daytona 500

$$S = \frac{500}{t}$$
Practice

① y varies inversely with x. If $y = 40$ when $x = 2$. Find the equation

$$y = \frac{k}{x}$$

$$2(40) = \left(\frac{k}{2}\right)2$$

$$80 = k$$

Steps
① plug in x and y

② solve for k

③ Write equation with k

$$y = \frac{80}{x}$$

(2) y varies inversely with x . If $y=6$ when $x=900$. Write an equation

$$y = \frac{k}{x}$$

$$900(6) = \left(\frac{k}{900}\right) 900$$

$$5400 = k$$

$$\triangleright y = \frac{5400}{x}$$

(3) If $y=.01$ and $x=100$, and x and y are inversely proportional find y if $x=75$

$$y = \frac{k}{x}$$

$$100(.01) = \left(\frac{k}{100}\right) 100$$

$$1 = k$$

$$y = \frac{1}{x}$$

① plug in x and y

② solve for k

③ write the equation

$$y = \frac{1}{x}$$

④ Plug in x to find y

$$x=75$$

$$y = \frac{1}{75}$$

(4) If $y=5$ and $x=8$ and they vary inversely, find y if $x=20$

$$y = \frac{k}{x} \rightarrow 5 = \left(\frac{k}{8}\right) \rightarrow 40 = k$$

$$\triangleright y = \frac{40}{x}$$

$$y = \frac{40}{20} = 2$$