

Write the following answers in any order on your MATHO board.

$\frac{1}{3}$	12	104	3360
$y = 4x$	$y = 10/x$	72	4
$y = x/3$	$y = 30/x$	25	16445
21	27	0.7	4.5
120	2	28	
85	36	1.8	
7	0.24		

Feb 3-2:00 PM

Find k where y varies directly as x , and the following are true.

$y = 2$ when $x = 6$

$$y = kx$$

$$2 = k(6)$$

$$k = \frac{1}{3}$$

Feb 3-2:03 PM

The number (b) of bolts a machine can make varies directly as the time (t) it operates. It can make 6578 bolts in 2 hours. How many bolts can it make in 5 hours?

$$b = kt$$

$$6578 = k(2)$$

$$k = 3289$$

$$b = 3289(5)$$

$$16445$$

Feb 3-2:04 PM

It takes 4 hours for 9 cooks to prepare a school lunch. How long would it take 8 cooks to prepare the lunch? (This is an inverse variation. t = time, c = cooks)

$$t = \frac{k}{c}$$

$$4 = \frac{k}{9}$$

$$k = 36$$

$$t = \frac{36}{8}$$

$$t = 4.5$$

Feb 3-2:04 PM

Find an equation of joint variation. Then solve for the missing value.

m varies jointly as n and p .
 One set of values is $m = 60$ when $n = 4$ and $p = 5$.
 Find m when $n = 12$ and $p = 2$.

$$m = knp$$

$$60 = k(4)(5)$$

$$k = 3$$

$$m = 3np$$

$$m = 3(12)(2)$$

$$m = 72$$

Feb 3-2:04 PM

The amount (a) that a family gives to charity varies directly as its income (i). Last year, the family earned \$32,000 and gave \$2560 to charity. How much will they give if they make \$42,000 this year?

$$a = ki$$

$$2560 = k(32,000)$$

$$k = .08$$

$$a = .08(42,000)$$

$$3360$$

Feb 3-2:04 PM

Find an equation of combined variation. Then solve for the missing value.

d varies directly as e and inversely as f . One set of values is $d = 10$ when $e = 4$ and $f = 2$. Find d when $e = 50$ and $f = 10$.

$$d = \frac{Ke}{f} \quad d = \frac{5(50)}{10}$$

$$10 = \frac{K(4)}{2} \quad d = 25$$

$$10 = 2K$$

$$K = 5$$

Feb 3-2:04 PM

Find an equation of variation where y varies directly as x , and the following are true.

$y = 24$ when $x = 6$

$$y = Kx$$

$$24 = K(6)$$

$$K = 4$$

$$y = 4x$$

Feb 3-2:04 PM

Find an equation of combined variation. Then solve for the missing value.

z varies directly as x and inversely as y . One set of values is $z = 16$ when $x = 32$ and $y = 0.4$. Find z when $x = 28$ and $y = 8$.

$$z = \frac{Kx}{y} \quad z = \frac{.2(28)}{8}$$

$$16 = \frac{K(32)}{0.4} \quad z = .7$$

$$K = .2$$

Feb 3-2:04 PM

Find k where y varies inversely as x .

$y = 2$ when $x = 6$

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

$$2 = \frac{K}{6}$$

$$K = 12$$

Feb 3-2:04 PM

The current (I) in an electrical conductor varies inversely as the resistance (r) of the conductor.

The current is 2 amperes when the resistance is 960 ohms. What is the current when the resistance is 480 ohms?

$$I = \frac{K}{r} \quad I = \frac{1920}{480}$$

$$2 = \frac{K}{960} \quad 4$$

$$K = 1920$$

Feb 3-2:04 PM

Find an equation of variation where y varies directly as x , and the following are true.

$y = 2$ when $x = 10$

$$y = Kx$$

$$2 = K(10)$$

$$K = \frac{1}{5} \quad y = \frac{1}{5}x$$

Feb 3-2:04 PM

Assume y varies directly as x . $y = kx$
 $y = 12$ when $x = 4$. Find y when $x = 7$.

$$12 = k(4)$$

$$k = 3$$

$$y = 3(7)$$

$$y = 21$$

Feb 3-2:05 PM

Find an equation of joint variation. Then solve for the missing value.
 a varies jointly as b and c . One set of values is $a = 86.4$ when $b = 9$ and $c = 12$. Find a when $b = 20$ and $c = 6.5$.

$$a = kbc$$

$$86.4 = k(9)(12)$$

$$k = .8 \quad 104$$

$$a = .8bc$$

$$a = .8(20)(6.5)$$

Feb 3-2:05 PM

The volume (v) of a cone varies jointly as the height (h) of the cone and the area of the base (b). A cone has a volume of 140 with height 15 and base 28. Find the volume of a cone with height 7 and base 12.

$$V = khb$$

$$140 = k(15)(28)$$

$$k = \frac{1}{3}$$

$$V = \frac{1}{3}(7)(12)$$

$$V = 28$$

Feb 3-2:05 PM

Find an equation of variation where y varies inversely as x .
 $y = 5$ when $x = 2$

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

$$y = \frac{10}{x}$$

$$5 = \frac{k}{2}$$

$$k = 10$$

Feb 3-2:05 PM

Assume y varies directly as x .
 $y = 80$ when $x = 8$. Find y when $x = 12$.

$$y = kx$$

$$80 = k(8)$$

$$k = 10$$

$$y = 10(12)$$

$$y = 120$$

Feb 3-2:05 PM

A pitcher's earned run average (a) varies directly as the number of earned runs (r) allowed and inversely as the number of innings (i) pitched. Joe Price had an earned run average of 2.55. He gave up 85 earned runs in 300 innings. What would his average be if he gave up 120 earned runs in 600 innings?

$$a = \frac{kr}{i}$$

$$k = 9$$

$$a = \frac{9r}{i}$$

$$2.55 = \frac{k(85)}{300}$$

$$a = \frac{9(120)}{600}$$

$$a = 1.8$$

Feb 3-2:05 PM

Assume y varies directly as x .

$y = 51$ when $x = 3$. Find y when $x = 5$.

$$y = kx \quad y = 17(5)$$

$$51 = k(3) \quad y = 85$$

$$k = 17$$

Feb 3-2:05 PM

Assume y varies inversely as x .

$y = 0.3$ when $x = 4$. Find y when $x = 5$.

$$y = \frac{k}{x} \quad y = \frac{1.2}{5}$$

$$0.3 = \frac{k}{4} \quad y = 0.24$$

$$k = 1.2$$

Feb 3-2:06 PM

Assume y varies directly as x .

$y = 6$ when $x = 12$. Find y when $x = 14$.

$$y = kx \quad y = \frac{1}{2}x$$

$$6 = k(12) \quad y = \frac{1}{2}(14)$$

$$k = \frac{1}{2} \quad y = 7$$

Feb 3-2:06 PM

Find an equation of variation where y varies inversely as x .

$y = 3$ when $x = 10$

$$y = \frac{k}{x} \quad y = \frac{30}{x}$$

$$3 = \frac{k}{10}$$

$$k = 30$$

Feb 3-2:08 PM

Assume y varies inversely as x .

$y = 9$ when $x = 12$. Find y when $x = 3$.

$$y = \frac{k}{x} \quad y = \frac{108}{3}$$

$$9 = \frac{k}{12} \quad y = 36$$

$$k = 108$$

Feb 3-2:08 PM

Assume y varies inversely as x .

$y = 9$ when $x = 6$. Find y when $x = 2$.

$$y = \frac{k}{x} \quad y = \frac{54}{2}$$

$$9 = \frac{k}{6} \quad y = 27$$

$$k = 54$$

Feb 3-2:08 PM

Assume y varies inversely as x .

$y = 4$ when $x = 6$. Find y when $x = 12$.

$$y = \frac{k}{x} \quad y = \frac{24}{12}$$
$$4 = \frac{k}{6} \quad y = 2$$
$$k = 24$$

Feb 3-2:09 PM

Feb 3-2:14 PM