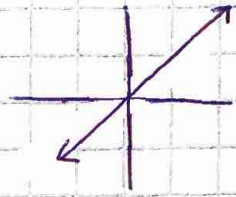


Direct Variation



- * linear
- * goes through (0,0)

$$\frac{y}{x} = k \quad \text{OR} \quad y = kx$$

ex 1 x & y vary directly. When $x=10$, $y=5$ find the constant k .

$$k = \frac{5}{10} = \boxed{\frac{1}{2}}$$

ex 2 y varies directly with x . When $x=8$, $y=24$. Find x when $y=10$.

$$k = \frac{24}{8} = 3 \rightarrow y = 3x$$

$$\boxed{\frac{10}{3} = x}$$

ex 3 Your income varies directly with your hours worked. When you work 10 hrs you make \$172.50.

a) write the equation for this $k = \frac{172.50}{10} = 17.25$

$$y = 17.25x$$

b) How many hrs did you work if you made \$258.75?

$$258.75 = 17.25x$$

$$15 = x \quad \boxed{15 \text{ hrs}}$$

ex 4 Given the chart find the equation given this is a direct variation.

a)

x	y	y/x
-10	-30	3
-5.2	-15.6	3
3	9	3
6.8	20.4	3

$$y = 3x$$

b)

x	y	y/x
-5	-2.5	1/2
4	2	1/2
6.2	3.1	1/2
10	5	1/2

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