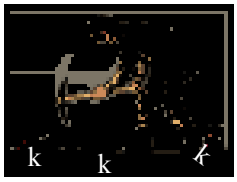
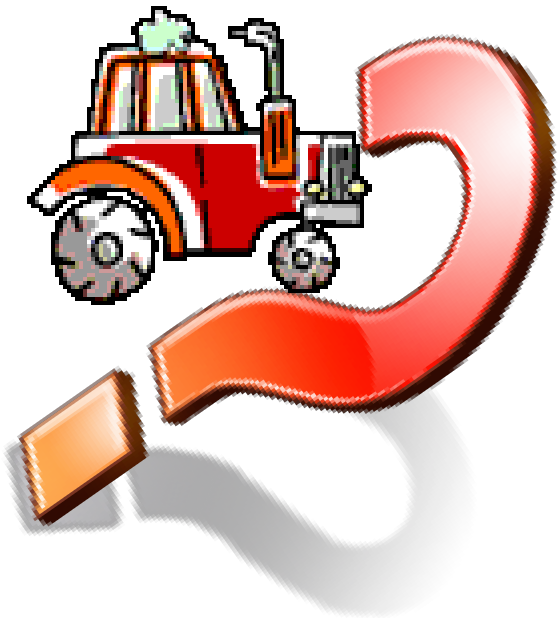
"Finding K"



$$m = \frac{y_2 - y_1}{x_2 - x_1}$$



(x_1, y_1) (x_2, y_2)

A line passes through the points (2, k) and (5,7). If the slope is $\frac{2}{3}$, what is the value of k?

$m = \frac{2}{3}$

Given: $x_1 = 2$ $x_2 = 5$
$y_1 = k$ $y_2 = 7$
$m = \frac{2}{3}$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{2}{3} = \frac{7-k}{5-2}$$

(cross multiply)

$$3 \cdot \frac{2}{3} = \frac{7-k}{3} \cdot 3$$

$$2 = 7 - k$$

$$k = 7 - 2$$

$$\boxed{k = 5}$$

$$\frac{2}{3} = \frac{7-k}{3}$$

$$2(3) = 3(7-k)$$

$$6 = 21 - 3k$$

$$3k = 21 - 6$$

$$\frac{3k}{3} = \frac{15}{3}$$

$$\boxed{k = 5}$$

same answer

A line passes through the points $(-7,-8)$ and $(k,-4)$. If the slope is $\frac{-4}{3}$, what is the value of k?

(x_1, y_1) (x_2, y_2)

$m = \frac{-4}{3}$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{-4}{3} = \frac{-4-(-8)}{k-(-7)}$$

$$\frac{-4}{3} = \frac{4}{k+7} \quad \text{(cross multiply)}$$

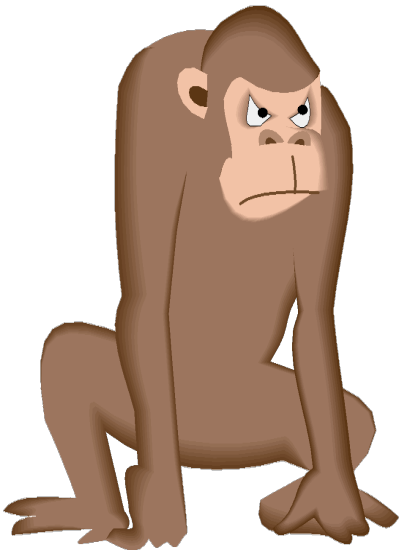
$$-4(k+7) = 4(3)$$

$$-4k - 28 = 12$$

$$-4k = 12 + 28$$

$$\frac{-4k}{-4} = \frac{40}{-4}$$

$$k = -10$$



(x_1, y_1) (x_2, y_2)

A line passes through the points (2, k) and (k,-3). If the slope is -2 , what is the value of k?

m

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{-2}{1} = \frac{-3-k}{k-2}$$

$$-2(k-2) = 1(-3-k)$$

$$-2k+4 = -3-k$$

$$-2k+k = -3-4$$

$$\frac{-k}{-1} = \frac{-7}{-1}$$

$$\boxed{k=7}$$

(x_1, y_1) (x_2, y_2)

A line passes through the points (2k , 11) and (k , k+3). If the slope is $\frac{3}{5}$, what is the value of k?

$m = \frac{3}{5}$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{3}{5} = \frac{k+3-11}{k-2k}$$

$$\frac{3}{5} = \frac{k-8}{-1k}$$

$$3(-k) = 5(k-8)$$

$$-3k = 5k - 40$$

$$-3k - 5k = -40$$

$$\frac{-8k}{-8} = \frac{-40}{-8}$$

$$\boxed{k = 5}$$

origin → (0,0)