

Try These...

1. $(5, k)$ $(k, -5)$ $m = \frac{-1}{3}$
2. $(3, k)$ $(-1, 5)$ Perpendicular to $\frac{3}{4}$
3. **A line passes through points $(4k, 8)$ & $(2k, 6)$.
If the slope is perpendicular to the x-axis,
find k .**

$$1. \quad (x_1, y_1) \quad (x_2, y_2) \quad m = \frac{-1}{3}$$

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

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

$$-1(k - 5) = 3(-5 - k)$$

$$-1k + 5 = -15 - 3k$$

$$-1k + 3k = -15 - 5$$

$$2k = -20$$

$$k = -10$$

2. $(3, k)$ $(-1, 5)$ Perpendicular to $\frac{3}{4} \perp \frac{-4}{3}$
(Handwritten: x_1, y_1 and x_2, y_2 under the points)

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

$$\frac{-4}{3} = \frac{5 - k}{-1 - 3}$$
(Handwritten: red circles around 5-k and -1-3)

$$3(5 - k) = -4(-1 - 3) \quad -4(-4)$$
(Handwritten: red arrows pointing from 3 to 5-k and from -4 to -1-3)

$$15 - 3k = 4 + 12$$

$$-3k = 4 + 12 - 15$$

$$-3k = 1$$

$$k = \frac{1}{-3} \quad \text{or} \quad k = \frac{-1}{3}$$

3. A line passes through points (x_1, y_1) & (x_2, y_2) .
 If the slope is perpendicular to the x-axis,
 find k.

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

x-axis

$$\frac{0}{1} \perp \frac{1}{0}$$

$$\frac{1}{0} = \frac{6-8}{2k-4k} \quad \begin{matrix} -2 \\ -2k \end{matrix}$$

$$1(2k-4k) = 0(6-8)$$

$$2k-4k = 0$$

$$-2k = 0$$

$$k = 0$$

$$\frac{1}{0} = \frac{-2}{-2k}$$

$$\frac{-2k}{-2} = \frac{0}{-2}$$

$$k = 0$$