

Warm up



1. Determine the equation of a line with a y-intercept of 5 and a slope of $\frac{2}{3}$?
2. Determine the equation of a line with a slope of 4 and passing through the point $(-3, 5)$.
3. Determine the equation of a vertical line passing through the point $(-3, 5)$.
4. Determine the equation of a line passing through the points $(5, -2)$ and $(2, 8)$.

State answers in general form.

1. Determine the equation of a line with a y-intercept of 5 and a slope of $\frac{2}{3}$? m b

Slope-Intercept

$$y = mx + b$$

$$y = \frac{2}{3}x + 5$$

$$3y = 2x + 15$$

$$-2x + 3y - 15 = 0$$

$$2x - 3y + 15 = 0$$

2. Determine the equation of a line with a slope of 4 and passing through the point $(-3, 5)$.

Slope-Point

$$y - y_1 = m(x - x_1)$$
$$y - 5 = 4(x + 3)$$
$$y - 5 = 4x + 12$$

$$-4x + y - 5 - 12 = 0$$
$$-4x + y - 17 = 0$$
$$4x - y + 17 = 0$$

3. Determine the equation of a vertical line passing through the point $(-3, 5)$.

$\frac{1}{0}$

Slope - Point

$$y - y_1 = m(x - x_1)$$

$$y - 5 = \frac{1}{0}(x + 3)$$

$$0 = 1(x + 3)$$

$$0 = x + 3$$

$$x + 3 = 0$$

4. Determine the equation of a line passing through the points (5, -2) and (2, 8).

$$\begin{array}{l}
 \begin{array}{c} x_1 \ y_1 \quad x_2 \ y_2 \\ (5, -2) \ (2, 8) \end{array} \\
 m = \frac{y_2 - y_1}{x_2 - x_1} \\
 m = \frac{8 - (-2)}{2 - 5} \\
 m = \frac{10}{-3}
 \end{array}
 \left. \vphantom{\begin{array}{l} \\ \\ \\ \\ \end{array}} \right\}
 \begin{array}{l}
 (x_1, y_1) \quad m = \frac{10}{-3} \\
 y - y_1 = m(x - x_1) \\
 y - 8 = \frac{10}{-3}(x - 2) \\
 -3y + 24 = 10(x - 2) \\
 -3y + 24 = 10x - 20 \\
 -10x - 3y + 24 + 20 = 0 \\
 -10x - 3y + 44 = 0 \\
 10x + 3y - 44 = 0
 \end{array}
 \end{array}$$

Attachments

SN00229A[1].wav