

Algebra /

Writing an equation in slope-intercept form given the slope and a...

Writing an equation in slope-intercept form given the slope and a point

A line passes through the point $(-2, 8)$ and has a slope of $-\frac{5}{2}$.

Write an equation in slope-intercept form for this line.

$\square$

$\square = \square$ $\frac{\square}{\square}$

$\times$ $\rightarrow$

$\square + \text{Slow Formula}$

Point Slope Formula

$$y - y_1 = m(x - x_1)$$
$$y - 8 = -\frac{5}{2}(x - 2)$$
$$y - 8 = -\frac{5}{2}(x + 2) \quad -\frac{5}{2}(2)$$
$$y - 8 = -\frac{5}{2}x - 5$$
$$+8 \quad +8$$
$$y = -\frac{5}{2}x + 3$$

$$y = mx + b$$

$m = \text{slope}$

$b = y\text{-intercept}$

(x, y) any point on line

$$\begin{pmatrix} x & y \\ -2 & 8 \end{pmatrix} \quad \begin{pmatrix} m \\ -\frac{5}{2} \end{pmatrix} \quad b = ?$$

$$y = mx + b$$

$$8 = -\frac{5}{2}(-2) + b$$

$$8 = 5 + b$$

-5-5

$$3 = b$$

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

Writing an equation in slope-intercept form given the slope and a point

A line passes through the point $(10, 9)$ and has a slope of $\frac{5}{2}$.

Write an equation in slope-intercept form for this line.

$$y = mx + b$$
$$9 = \frac{5}{2} \left(\frac{5}{1} \right) + b$$
$$9 = 25 + b$$
$$-25 \quad -25$$
$$\underline{-16 = b}$$

$$y = \frac{5}{2}x - 16$$

$$\begin{pmatrix} x & y \\ 2 & 5 \end{pmatrix} \quad \mu = \frac{2}{3}$$

$$y = mx + b$$

$$5 = \frac{2}{3}(2) + b$$

$$3 \quad \begin{array}{r} 48 \\ - 48 \\ \hline 0 \end{array} + 36$$

$$15 = 4 + 3b$$

rewrite

$$15 = 4 + 31$$

$$\frac{11}{3} = \frac{36}{3}$$

$$\frac{11}{3} = b$$

$$y = \frac{2}{3}x + \frac{11}{2}$$

#LinesAndFunctions