

Today's Plan:

Learning Target (standard): I will use the slope-intercept form to write the equation of a line and graph it.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, and will take a quiz.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of slope-intercept problems.

Assessment: Board work, homework check and quiz

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice slope-intercept method.

Find the equation for the line perpendicular to the given and passing through the indicated point.

~~$-2x - 5y = 10$~~

passes through $(-2, 4)$

$$m_{\perp} = \frac{5}{2}$$

~~$-5y = 2x + 10$~~
 ~~$y = \frac{2}{5}x - 2$~~
 $m = -\frac{2}{5}$

① slope-intercept

$$y = mx + b$$

$$4 = \frac{5}{2}(-2) + b$$

$$4 = -5 + b$$

$$b = 9$$

$$y = \frac{5}{2}x + 9$$

② standard

$$y = \frac{5}{2}x + 9$$

$$-2 \left[-\frac{5}{2}x + y = 9 \right]$$

$$5x - 2y = -18$$

Find the equation of the line that passes through the given points:

(5,4) and (-2,1)

$$\textcircled{1} m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - 4}{-2 - 5} = \frac{-3}{-7}$$

$$m = \frac{3}{7}$$

$\textcircled{2}$ slope-intercept

$$y = mx + b$$

$$4 = \frac{3}{7}(5) + b$$

$$7 \left[4 = \frac{15}{7} + b \right]$$

$$28 = 15 + 7b$$

$$13 = 7b$$

$$b = \frac{13}{7}$$

$\textcircled{3}$ standard

$$y = \frac{3}{7}x + \frac{13}{7}$$

$$-7 \left[-\frac{3}{7}x + y = \frac{13}{7} \right]$$

$$\boxed{3x - 7y = -13}$$

$$\boxed{y = \frac{3}{7}x + \frac{13}{7}}$$

Find the equation for the line parallel to the given and passing through the indicated point.

$$-4x - 6y = 18$$

$$+4x \qquad +4x$$

passes through: (-2,4)

$$m_{//} = -\frac{2}{3}$$

$$-6y = 4x + 18$$

$$\frac{-6y}{-6} = \frac{4x}{-6} + \frac{18}{-6}$$

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

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

$$\textcircled{1} y = mx + b$$

$$4 = -\frac{2}{3}(-2) + b$$

$$4 = \frac{4}{3} + b$$

$$\frac{12}{3} - \frac{4}{3} = b$$

$$b = \frac{8}{3}$$

$$\boxed{y = -\frac{2}{3}x + \frac{8}{3}}$$

slope-intercept

$$\textcircled{2}^3 \left(y = -\frac{2}{3}x + \frac{8}{3} \right)$$

$$3y = -2x + 8$$

$$\boxed{2x + 3y = 8}$$

standard

Find the equation for the line perpendicular to the given and passing through the indicated point.

$$3x - 5y = -10$$

passes through: (6,2)

$$m_{\perp} = -\frac{3}{5}$$

$$\frac{-5y}{-5} = \frac{-3x - 10}{-5}$$

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

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

$$\textcircled{1} y = mx + b$$

$$2 = -\frac{3}{5}(6) + b$$

$$2 = -10 + b \quad \text{slope-intercept}$$

$$b = 12$$

$$y = -\frac{3}{5}x + 12$$

$$\textcircled{2} \left(y = -\frac{5}{3}x + 12 \right)$$

$$3y = -5x + 36$$

$$5x + 3y = 36$$

Standard form