

Today's Plan:

Learning Target (standard): I will write equations for lines in slope-intercept form and standard form.

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, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

p.290 #4-56 (by 4)

$$4)y = \frac{2}{3}x - \frac{7}{3}$$

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

$$12)y = -4x - 4$$

$$16)y = \frac{3}{4}x$$

$$20)y = -\frac{4}{5}x + 5$$

$$24)y = \frac{4}{3}x + 3$$

$$28)y = -2$$

$$32)y = \frac{6}{5}x - 5$$

$$36)x = -2$$

$$40)y = -2$$

$$44)y = -2x - 2$$

$$48)y = \frac{3}{5}x + \frac{8}{5}$$

$$52)y = -2x + 4$$

$$56)y = x + 3$$

Find the equation of the line that has the given characteristics.

$$P(-3, -1)$$

$$P(-2, -5)$$

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

$$m = -4$$

$$y = mx + b$$

$$-5 = -4(-2) + b$$

$$-5 = 8 + b$$

$$b = -13$$

$$y = -4x - 13$$

Find the equation of the line that has the given characteristics.

$$P(2, 3)$$

$$P(5, 5)$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - 3}{5 - 2} = \frac{2}{3}$$

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

$$y = mx + b$$

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

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

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

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

Find the equation of the line that has the given characteristics.

$$P(-1, 4)$$

$$P(-1, -6)$$

$$x = -1$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6 - 4}{-1 - 1} = \frac{-10}{0}$$

$$m = \text{und}$$



Find the equation of the line that has the given characteristics.

$$P(2, 6)$$

$$P(-1, -2)$$

$$y = mx + b$$

$$-2 = \frac{8}{3}(-1) + b$$

$$-2 = -\frac{8}{3} + b$$

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

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - 6}{-1 - 2} = \frac{-8}{-3}$$

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

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

Find the equation of the line that has the given characteristics.

$$P(3, -1)$$

$$P(2, -1)$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - (-1)}{2 - 3} = \frac{0}{-1} = 0$$



$$y = -1$$

$$m = 0$$

Find the equation of the line that has the given characteristics.

$$P(3, -4)$$

$$P(-1, 3)$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - (-4)}{-1 - 3} = \frac{7}{-4} = -\frac{7}{4}$$

$$m = -\frac{7}{4}$$

$$y = mx + b$$

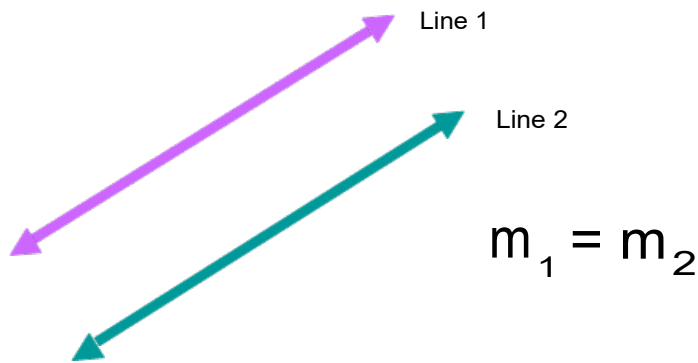
$$3 = -\frac{7}{4}(-1) + b$$

$$3 = \frac{7}{4} + b$$

$$b = \frac{5}{4}$$

$$y = -\frac{7}{4}x + \frac{5}{4}$$

Properties of Parallel



Parallel?? $m_1 = m_2$

Is the line that contains the points $(4, -3)$ and $(2, 5)$ parallel to the line that contains the points $(-2, -3)$ and $(-4, 1)$?

$$m_1 = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 + 3}{2 - 4} = \frac{8}{-2} = -4 \quad m_1 = -4$$

$$m_2 = \frac{1 + 3}{-4 + 2} = \frac{4}{-2} = -2 \quad m_2 = -2$$

\therefore not parallel
because $m_1 \neq m_2$

- Find the equation of the line containing the point $(3,2)$ and parallel to the line ~~$3x + y = -3$~~ .

$$m_{//} = -3 \quad y = mx + b$$

$$2 = -3(3) + b$$

$$2 = -9 + b$$

$$b = 11$$

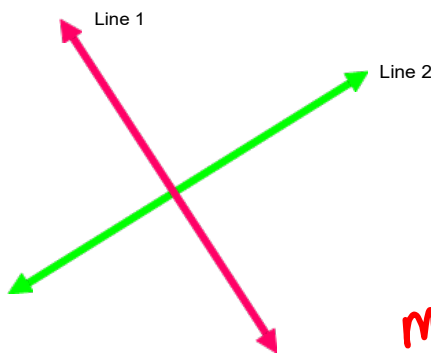
$$y = -3x + 11$$

$$y = -3x - 3$$

$$m = -3$$

Perpendicular Lines

$$l_1 \perp l_2$$



$$m_1 = -\frac{1}{m_2}$$

$$m_1 = \frac{3}{4} \perp m_2 = -\frac{4}{3}$$

$$m_1 = -2 \perp m_2 = \frac{1}{2}$$

$$m_1 = 0 \perp m_2 = \text{und}$$

$$m_1 = 0 = \frac{0}{\#} \perp m_2 = -\frac{\#}{0}$$

Perpendicular?? $m_1 = -\frac{1}{m_2}$

Is the line that contains the points $(3,5)$ and $(-3,3)$ perpendicular to the line that contains the points $(2,-5)$ and $(-4,4)$?

$$m_1 = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 5}{-3 - 3} = \frac{-2}{-6} \quad m_1 = \frac{1}{3}$$

$$m_2 = \frac{4 - (-5)}{-4 - 2} = \frac{9}{-6} \quad m_2 = -\frac{3}{2}$$

\therefore not perpendicular
because $m_1 \neq -\frac{1}{m_2}$

- Find the equation of the line containing the point $(-1,3)$ and perpendicular to the line $2x + 4y = -1$.

$$m_{\perp} = 2$$

$$y = mx + b$$

$$3 = 2(-1) + b$$

$$3 = -2 + b$$

$$b = 5$$

$$y = 2x + 5$$

$$4y = -2x - 1$$

$$y = -\frac{1}{2}x - \frac{1}{4}$$

$$m = -\frac{1}{2}$$

Assignment:

p.291 #60-112 (by 4)