

$y = mx + b$	Slope-intercept form of a linear equation: slope is m , and y -intercept is $(0, b)$
$y - y_1 = m(x - x_1)$	Point-slope form of a linear equation: slope is m , and (x_1, y_1) is the point on the line.
$y = c$	Horizontal line: the slope is 0 and the y -intercept is $(0, c)$.

OBJECTIVE 3: Finding Equation of Parallel & Perpendicular Lines

- If lines are parallel, then their slopes are the exact same slopes with a different y -intercept.
- If lines are perpendicular, then their slopes are the negative reciprocal.
- The product of negative reciprocals is always negative one.
- The symbol for parallel is a slanted 11: //.
- The symbol for perpendicular is an upside down capital T: \perp .

TASK 5: State the correct parallel and perpendicular slope.

a) $y = -2x + 5$

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

b) $y - 3 = 4(x + 7)$

$\parallel m = 4$
 $\perp m = -\frac{1}{4}$

c) $2x + 3y = -6$
 $-\frac{2x}{3} \quad -\frac{2x}{3}$
 $\frac{3y}{3} = \frac{-2x - 6}{3}$
 $y = \frac{2}{3}x - 2$

$\parallel m = -\frac{2}{3} \quad \perp m = \frac{3}{2}$

TASK 6:

Find an equation of the line containing the point $(4, 4)$ and parallel to the line $2x + 6y = -8$.

$$//m = -\frac{1}{3}$$

$$\perp m = 3$$

x_1, y_1 $m=m$

$$y - 4 = -\frac{1}{3}(x - 4)$$

$$\frac{6y}{6} = \frac{-2x}{6} - \frac{8}{6}$$

$$y = -\frac{2}{6}x - \frac{8}{6}$$

$$y = -\frac{1}{3}x - \frac{4}{3}$$

TASK 7:

Find an equation of the line containing the point $(8, -3)$ and parallel to the line $3x + 4y = 1$.

$$//m = -\frac{3}{4}$$

$$\perp m = \frac{4}{3}$$

x_1, y_1 $m=m$

$$y + 3 = \frac{4}{3}(x - 8)$$

$$\frac{4y}{4} = \frac{-3x}{4} + \frac{1}{4}$$

$$y = -\frac{3}{4}x + \frac{1}{4}$$

$$y = -\frac{3}{4}x + \frac{1}{4}$$

Notes to myself:

-leave x & y in function

• only replace: $m, b, x_1, y_1, A, B, \frac{1}{2}C$

Still need help with: