

MORE LINES

Linear Function FACTS To KNOW

Slope-Intercept

$$y = mx + b$$

↑ ↑
slope y-int

Point-Slope

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

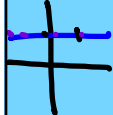
Standard form

$$Ax + By = C$$

- * No fractions
- * A is positive.

$$M = -\frac{A}{B}$$

Horizontal

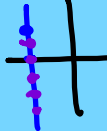


$$m = \frac{0}{1}$$

$$m = 0$$

$$y = \#$$

Vertical



$$m = \frac{1}{0}$$

$$m = \text{undefined}$$

$$x = \#$$

* Find the eq. of a line given:

- graph
- 2 points
- parallel or perp. to another line

* Graph lines
* by hand
* by calculator

$$M = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m(x_2 - x_1) = y_2 - y_1$$

Parallel Lines

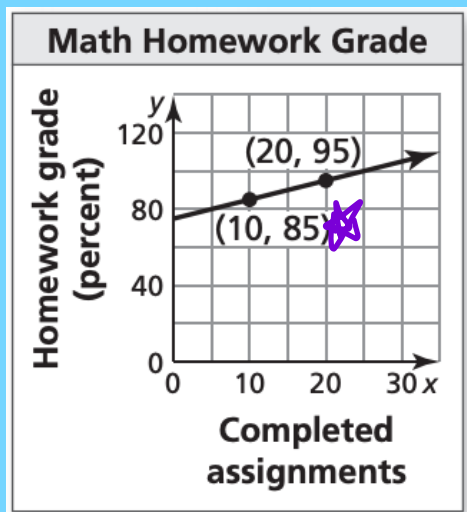
Same Slope

Perpendicular Lines

opposite reciprocal slope

$$m_1 = \frac{7}{2} \quad \perp m = -\frac{2}{7}$$

$$m_1 = -5 \quad \perp m = +\frac{1}{5}$$



Find the equation of the line shown on the graph.

$$m = \frac{95 - 85}{20 - 10} = \frac{10}{10} = 1$$

Point-Slope

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

$$y - 85 = 1(x - 10)$$

$$y - 85 = x - 10$$

$$y = x + 75$$

SHORTCUT!

$$(20, 27) \quad (20, 43)$$

$$x = 20$$

$$(-172, 3543) \quad (584, 3543)$$

$$y = 3543$$

Write the eq. of the line which passes through $(-2, 8)$
and is perpendicular to the line $2x - 3y = 7$.

$$m = \frac{-A}{B} = \frac{+2}{+3}$$

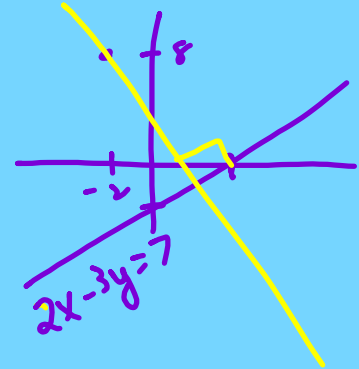
$$m = -\frac{3}{2} \quad (-2, 8)$$

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

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

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

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



$$-\frac{3}{2} \cdot 2$$

$$\frac{2y}{7} = \frac{8}{7} - \frac{4}{3}x'$$

