

MORE LINES

Linear Function FACTS TO KNOW

slope-intercept

$$y = mx + b$$

↑
y-int

point-slope

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

Parallel

Same slopes

Horizontal

$$m = 0$$

$$y = \#$$

Vertical

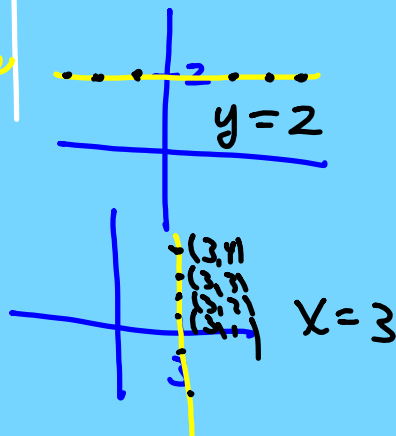
$m = \text{undef. slope}$
 $x = \#$

Perpendicular

opposite reciprocal slope

$$m_1 = \frac{2}{3} \quad \perp m = -\frac{3}{2}$$

$$m_1 = 8 \quad \perp m = +\frac{1}{8}$$



* Find the eq. of a line given:

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

* Graph lines

* by hand

* by calculator

Standard form

$$Ax + By = C$$

- No fractions

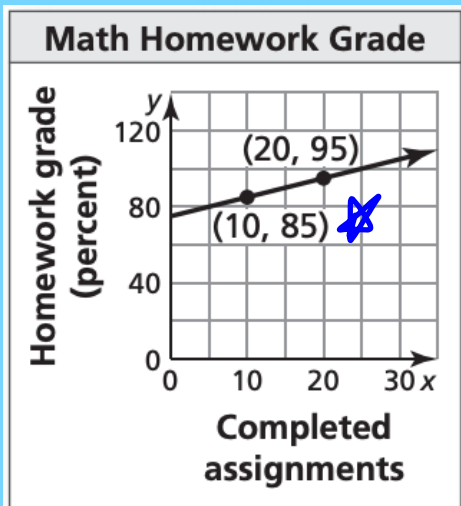
- A must be +

$$By = -\frac{Ax+C}{B}$$

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

$$1x - 3y = 8$$

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



Find the equation of the line shown on the graph.

~~$$y = mx + b$$~~

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

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

$$= \frac{10}{10} = 1$$

Point-Slope

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

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

$$y - 85 = x - 10$$

$$y = x + 75$$

$$y = 12 + 75$$

$$= 87$$

SHORTCUT!

$$(20, -50) \quad (20, 30)$$

$$x = 20$$

$$m = \frac{30 - -50}{20 - 20}$$

$$= \frac{80}{0}$$

$$(-137, 204.8) \quad (363, 204.8)$$

$$y = 204.8$$

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

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

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

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

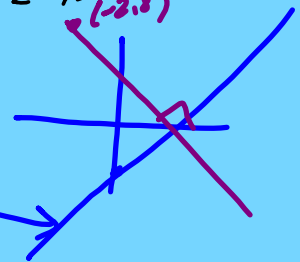
$$y - 8 = -\frac{3}{2}x - 3$$

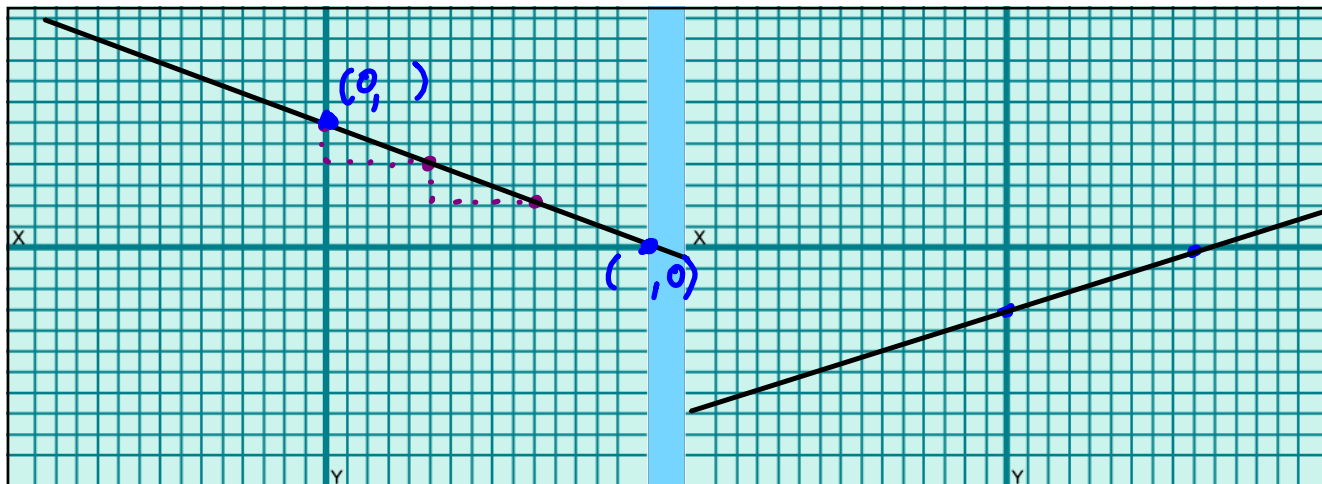
$$y = -\frac{3}{2}x + 5$$

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

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

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





Graph $y = -\frac{2}{5}x + 6$

\uparrow
m

\uparrow y-int

$-\frac{2}{5}$

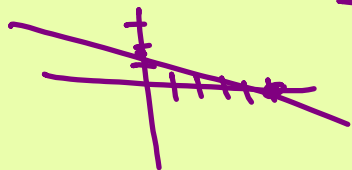
$2x - 6y = 18$

	x	y
x-int	9	0
y-int	0	-3

My way or the highway!

x-int = Let y=0
y-int = Let x=0

Graph $3x + 9y = 15$



	x	y
x-int	5	0
y-int	0	5/3

$y = \frac{15}{9}$
 $y = 5/3$

