Linear Functions

Linear Function

Slope

Vertical Line

Horizontal Line

Example 1: Find the slope of the line that passes through the following points:

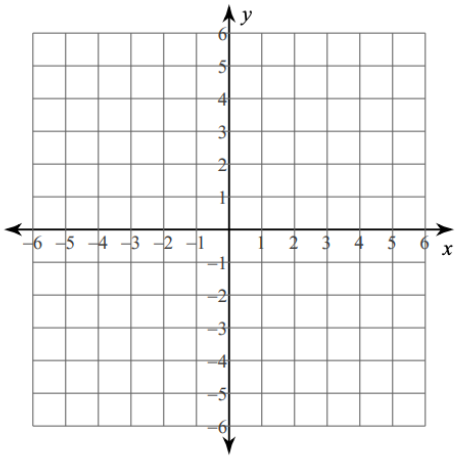
$(-12,-5)$ and $(0,-8)$	$(-3,5)$ and $(-3,-4)$	$(4,5)$ and $(-1,5)$

You Try: Find the slope of the line that passes through the following points:

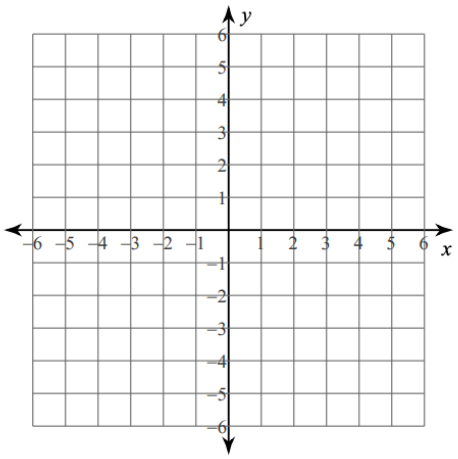
$(-1,-2)$ and $(-1,5)$	$(2,-1)$ and $(-5,3)$	$(8,10)$ and $(6,10)$

Example 2: Graph the following:

a. $x = 5$



b. $y = -2$



Point-slope form

Slope-intercept form

Example 3: Find the equation of a line with a slope of $\frac{1}{3}$ and passing through $(-3, 5)$

You Try: Find the equation of a line with a slope of $\frac{1}{4}$ and passing through $(8, -2)$

Example 4: Find the equation of a line with a slope of 0 and passing through $(-3, 5)$

You Try: Find the equation of a line with a slope of 0 and passing through $(8, -2)$

Example 5: Find the equation of a line with an undefined slope and passing through $(-3, 5)$

You Try: Find the equation of a line with an undefined slope and passing through $(8, -2)$

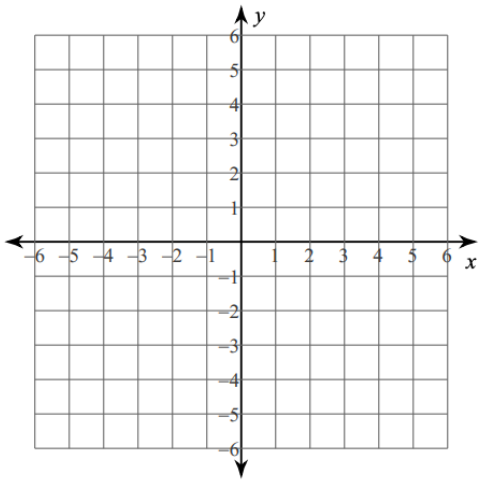
Example 6: Find the equation of a line passing through $(-3, 6)$ and $(6, 12)$

You Try: Find the equation of a line passing through $(-4, 3)$ and $(6, -2)$

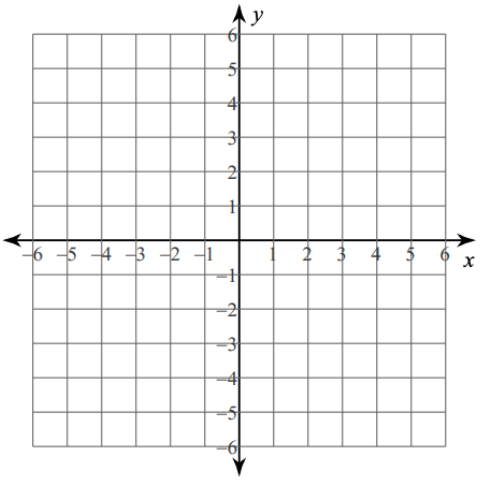
Graphing using slope-intercept form

Example 7: Graph the line:

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

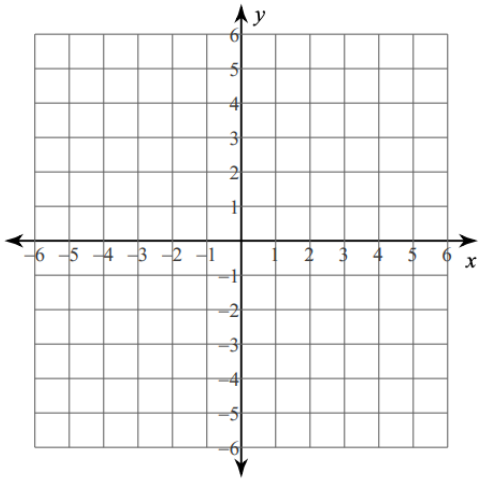


b. $10x - 5y = 20$

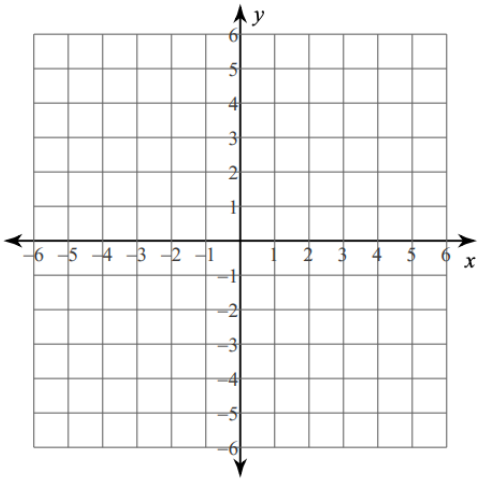


You Try: Graph the line:

a. $y = 4x - 2$



b. $2x - 6y = 12$



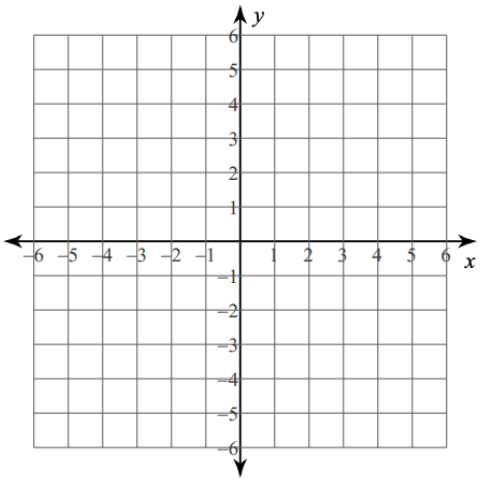
Graphing using intercepts

***x*-intercept**

***y*-intercept**

Example 8: Find the x and y intercepts and then graph the line.

$4x - y = -3$



You Try: Find the x and y intercepts and then graph the line.

$3x + 2y = -6$