

Module 5 Lesson 5
Math Lab: Analyzing General Form Possible Solutions

Part A

1. The completed chart should look like the following.

General Form	Slope-Intercept Form	Slope	y-intercept
$2x + 3y + 6 = 0$	$2x + 3y + 6 = 0$ $3y = -2x - 6$ $\frac{3y}{3} = \frac{-2x}{3} + \frac{-6}{3}$ $y = \frac{-2}{3}x + \frac{-6}{3}$	$\frac{-2}{3}$	$-\frac{6}{3}$
$3x + 4y - 12 = 0$	$3x + 4y - 12 = 0$ $4y = -3x + 12$ $\frac{4y}{4} = \frac{-3x}{4} + \frac{12}{4}$ $y = \frac{-3x}{4} + \frac{12}{4}$	$\frac{-3}{4}$	$\frac{12}{4}$
$9x - 3y + 12 = 0$	$9x - 3y + 12 = 0$ $-3y = -9x - 12$ $\frac{-3y}{-3} = \frac{-9x}{-3} + \frac{-12}{-3}$ $y = \frac{-9x}{-3} + \frac{-12}{-3}$	$\frac{-9}{-3}$	$\frac{-12}{-3}$
$5x - 2y - 10 = 0$	$5x - 2y - 10 = 0$ $-2y = -5x + 10$ $\frac{-2y}{-2} = \frac{-5x}{-2} + \frac{10}{-2}$ $y = \frac{-5x}{-2} + \frac{10}{-2}$	$\frac{-5}{-2}$	$\frac{10}{-2}$

Analysis

2. Coefficients A and B in general form are used to determine the slope of the linear function.
3. Coefficients C and B in general form are used to determine the y-intercept of the linear function.
4. The slope = $-\frac{A}{B}$, and the y-intercept = $-\frac{C}{B}$.

Part B

5. a. The y-intercept could be found using one of two methods:
- All y-intercepts have an x-coordinate equal to zero. Therefore, substitute $x = 0$ into the equation and solve for y.
 - Rearrange the equation into slope-intercept form $y = mx + b$. The constant b is the y-intercept.
- b. The x-intercept could be found using one of two methods:
- All x-intercepts have a y-coordinate equal to zero. Therefore, substitute $y = 0$ into the equation and solve for x.
 - Isolate x. Just as the constant is the y-intercept when in slope-intercept form, so too does the constant when x is isolated represent the x-intercept.
- c. Possible answers include the following.

To find the y-intercept, substitute $x = 0$.

$$\begin{aligned}2x + 3y - 6 &= 0 \\2(0) + 3y - 6 &= 0 \\3y - 6 &= 0 \\3y &= 6 \\y &= 2\end{aligned}$$

To find the x-intercept, substitute $y = 0$.

$$\begin{aligned}2x + 3y - 6 &= 0 \\2x + 3(0) - 6 &= 0 \\2x - 6 &= 0 \\2x &= 6 \\x &= 3\end{aligned}$$

- d. Plot the x-intercept and the y-intercept. Then draw a line through the points.

