Standard Form

\[ ax + by = c \]

The \( a \)-, \( b \)-, and \( c \)-values are numbers.

- Sometimes easier to write/understand equation from word problem.
  *This is used when the missing values (input & output) are not a total amount.
- Difficult to graph in standard form, so it needs to be converted to slope-intercept form.

Slope-Intercept Form: \( y = mx + b \)

To convert the equation from standard form to slope-intercept form, solve to get 'y' by itself.

\[ ax + by = c \]
Convert from Standard Form to Slope-Intercept Form

\[4x - 2y = 8\]

\[-2y = -4x + 8\]

\[-\frac{2y}{-2} = \frac{-4x + 8}{-2}\]

\[y = 2x - 4\]

Convert from Standard Form to Slope-Intercept Form

\[-6x - 3y = 9\]

\[-3y = 6x + 9\]

\[-\frac{3y}{-3} = \frac{6x + 9}{-3}\]

\[y = -2x - 3\]
Convert from Standard Form to Slope-Intercept Form

\[ 2x + 3y = 6 \]

\[ \begin{align*}
-2x & \quad -2x \\
3y &= -2x + 6 \\
\frac{3y}{3} &= \frac{-2x + 6}{3} \\
y &= -\frac{2}{3}x + 2
\end{align*} \]

Convert from Standard Form to Slope-Intercept Form

\[ -5x - 4y = -12 \]

\[ \begin{align*}
+5x & \quad +5x \\
-4y &= 5x - 12 \\
\frac{-4y}{-4} &= \frac{5x - 12}{-4} \\
y &= -\frac{5}{4}x + 3
\end{align*} \]
Graphing Standard Form

Graph the same way as slope-intercept form, except first step is getting it from standard form to slope-intercept form.