

MFM2P – Equations of Lines –Converting Standard Form Equations

If you are given an equation in standard form ($Ax + By + C = 0$) you can easily convert into slope y-intercept form.

Steps:

1. Isolate the variable term that contains the y using opposite operations.
2. Now that the variable term that contains the y is isolated, divided every term in the equation by the coefficient (number) attached to the y.
3. Switch the order of the equation so the y is on the left side.
4. Simplify the equation.

Example 1

Convert $2x - 5y + 8 = 0$ into slope y-intercept form.

Step 1:
$$2x - 5y + 8 = 0$$
$$+ 5y \quad + 5y$$

Step 2:
$$\frac{2x + 8}{5} = \frac{5y}{5}$$

Step 3:
$$y = \frac{2x + 8}{5}$$

Step 4:
$$y = \frac{2}{5}x + \frac{8}{5}$$

Example 2

Convert $-2x + 3y + 9 = 0$ into slope y-intercept form.

Step 1:
$$-2x + 3y + 9 = 0$$
$$- 3y \quad - 3y$$

Step 2:
$$\frac{-2x + 9}{-3} = \frac{-3y}{-3}$$

Step 3:
$$y = \frac{-2x + 9}{-3}$$

Step 4:
$$y = \frac{2}{3}x - 3$$

Convert the equations below into slope y-intercept form.

$$\begin{aligned} 2x - 3y + 12 &= 0 \\ -2x - 12 & -2x - 12 \\ -3y &= -2x - 12 \\ \frac{-3y}{-3} &= \frac{-2x}{-3} - \frac{12}{-3} \end{aligned}$$

$$y = \frac{2}{3}x + 4$$

or $y = 0.67x + 4$

$$4x + 5y - 10 = 0$$

$$-4x + 10 - 4x + 10$$
$$\frac{5y}{5} = \frac{-4x}{5} + \frac{10}{5}$$

$$y = 0.8x + 2$$

$$-7x + 2y + 8 = 0$$

$$+7x - 8 + 7x - 8$$

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

or $y = \frac{7}{2}x - 4$

$$y = 3.5x - 4$$

$$-x - y + 3 = 0$$

$$-x - y + 3 = 0$$
$$-1y -1y$$
$$y = -x + 3$$

$$-2y + 10 = 4x$$

$$-2y + 10 = 4x$$
$$-2y = 4x - 10$$
$$\frac{-2y}{-2} = \frac{4x}{-2} - \frac{10}{-2}$$

$$y = -2x + 5$$

$$x + 3y = 9$$

$$x + 3y = 9$$
$$-x -x$$
$$\frac{3y}{3} = \frac{-x}{3} + \frac{9}{3}$$
$$y = -0.33x + 3$$