

# Systems of Equations

## Solve by GRAPHING

### Step 1

Rewrite each equation in slope intercept form

$$y = mx + b$$

↑ slope     ↑ y-int

$$\begin{cases} \textcircled{1} x - 2y = 4 \\ \textcircled{2} y - x = -2 \end{cases} \rightarrow$$

$$\frac{y - x = -2}{+x \quad +x}$$

$$y = x - 2$$

$$\frac{x - 2y = 4}{-x \quad -x}$$

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

$$y = \frac{1}{2}x - 2$$

### Step 2

Use y-intercept and slope of the first equation to graph the first line

$$\textcircled{1} m = \frac{1}{2}$$

$$y\text{-int} = -2$$

$$\textcircled{2} \frac{1}{1} = m$$

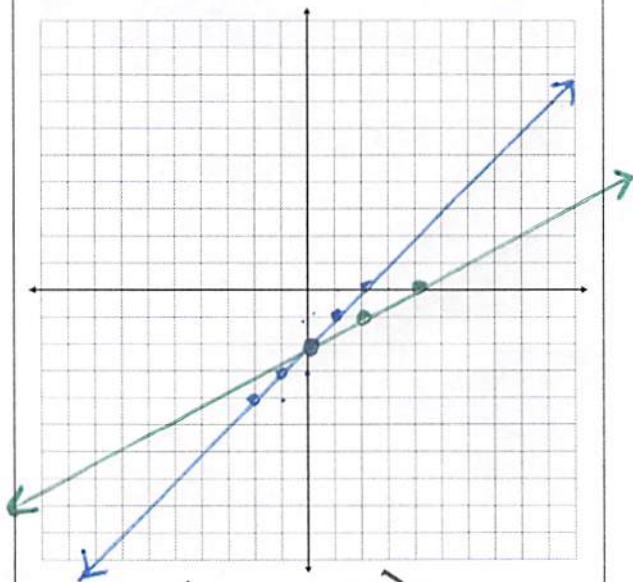
$$-2 = y\text{-int}$$

### Step 3

Use y-intercept and slope of the second equation to graph the second line

### Step 4

Locate the point where the two graphs intersect. This is the solution to the system of equations.



$$(0, -2)$$

$$(x, y)$$

### Step 5

Check your work by substituting the values for x and y into both equations

$$x - 2y = 4$$

$$0 - 2(-2) = 4$$

$$0 + 4 = 4$$

$$4 = 4 \quad \checkmark$$

$$y - x = -2$$

$$-2 - 0 = -2$$

$$-2 = -2 \quad \checkmark$$