

# Solving Systems by Graphing

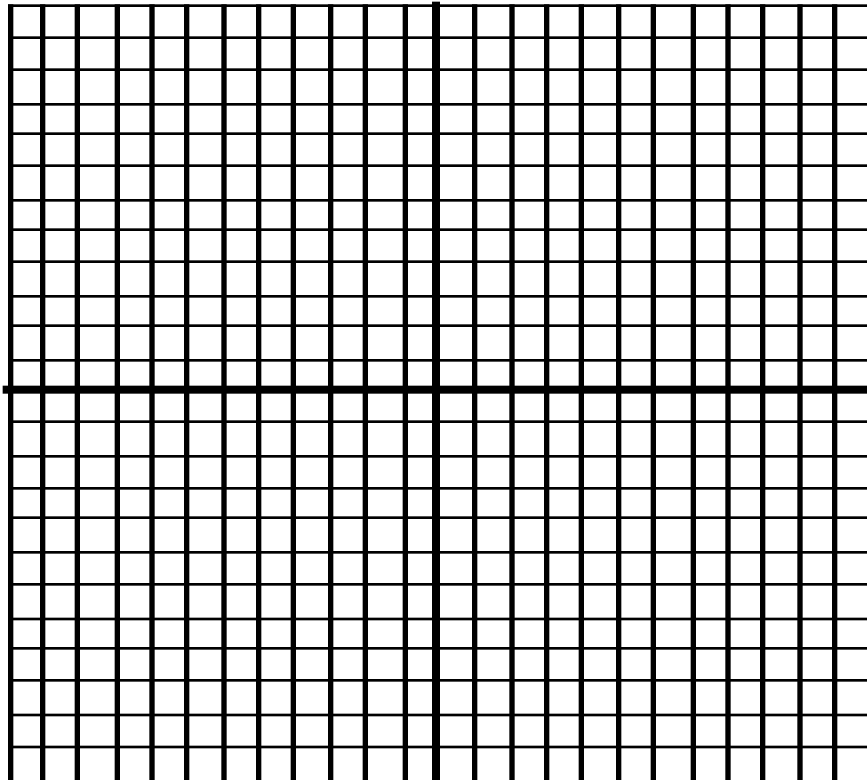
$$X - Y = -2$$

$$3X - Y = 0$$

Each point of each line has coordinates that satisfy the equation of that line. The one point that satisfies both equations is the point at which the two lines intersect, namely,  $(1,3)$

## Steps:

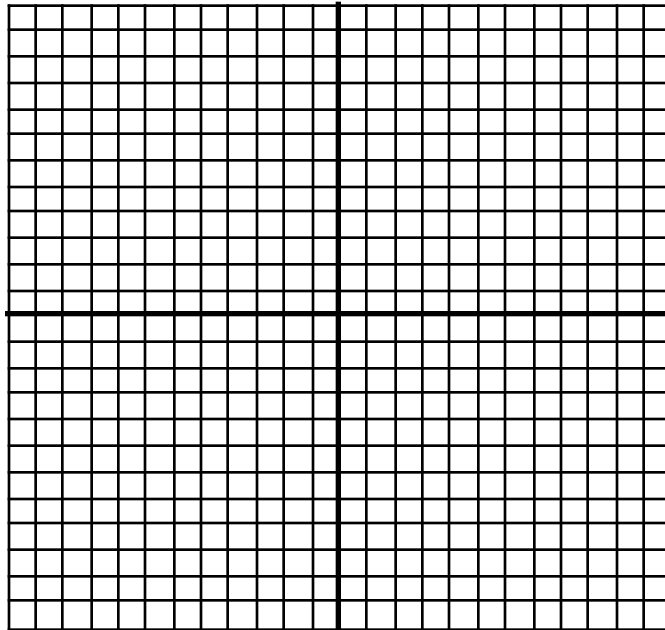
1. Change each equation to graphing form
2. Graph each line
3. Find their intersection
4. Check



**Example 1:** Solve the following system by graphing.

$$X + Y = 6$$

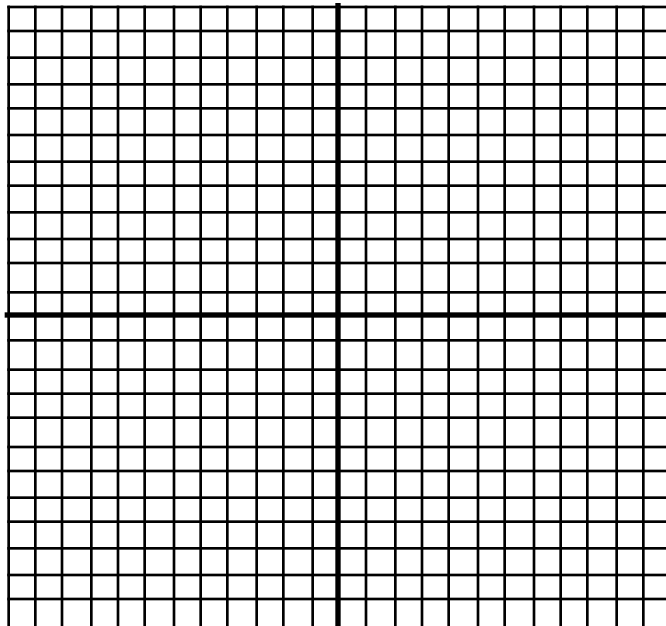
$$3X - 4Y = 4$$



**Example 2:** Example 1: Solve the following system by graphing.

$$12X - 9Y = 27$$

$$8X - 6Y = 18$$

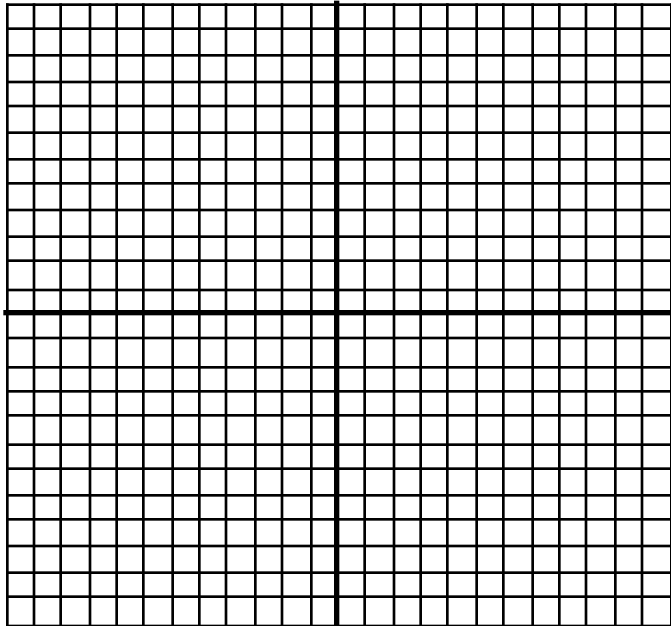


Graphs of Equations	Slopes & Intercepts	Name of Systems	Number of Solution
lines intersect	different slopes	Consistent, Independent	one
lines coincide	same slope, same intercepts	Consistent, Dependent	infinite
lines parallel	same slope, different intercepts	Inconsistent	zero

**Example 3:** Solve the following system by graphing and state whether it is consistent and independent, consistent and dependent, or inconsistent.

$$X + Y = 5$$

$$3X - 2Y = 20$$



**Example 4:** Solve the following system by graphing and state whether it is consistent and independent, consistent and dependent, or inconsistent.

$$Y = -3X + 5$$

$$9X + 3Y = 15$$

