

8.5 Systems of Equations Solving by Graphing

System of Equations
A group of 2 or more
equations

$$\begin{aligned} 2x + 3y &= 5 \\ 3x - 4y &= 12 \end{aligned}$$

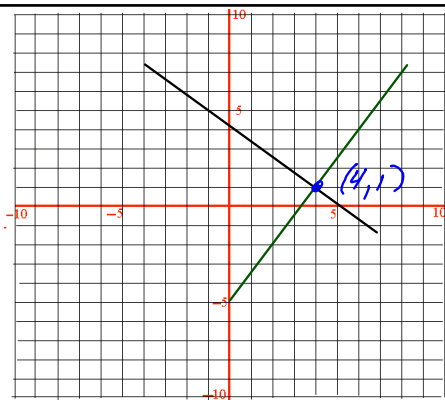
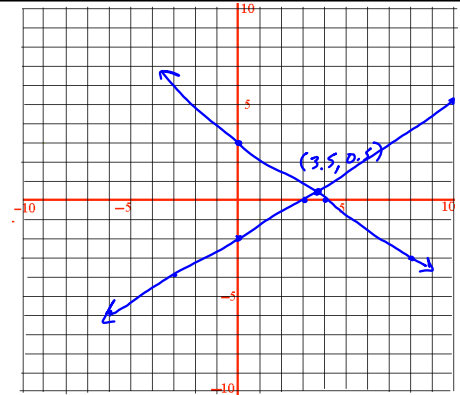
Solution to a system
is a point

The point is where the
two lines intersect

Parallel lines don't intersect
Same line multiple points

$$\begin{aligned} 2x - 3y &= 6 \\ x\text{-int} &= 3 \\ y\text{-int} &= -2 \end{aligned}$$

$$\begin{aligned} 3x + 4y &= 12 \\ x\text{-int} &= 4 \\ y\text{-int} &= 3 \end{aligned}$$



Algebra recall

How do we know
two lines are parallel

$$y = m_1x + b_1 \quad y = m_2x + b_2$$

$$m_1 = m_2$$

$$b_1 \neq b_2$$

$$y = -2x + 3 \quad \text{parallel}$$

$$y = -2x + 9$$

$$y = 2x - 3$$

$$y = -2x + 5$$

$$3x - y = 6$$

$$6x - 2y = 2$$

$$3x - y = 6$$

$$+y \quad +y$$

$$3x = 6 + y$$

$$-6 \quad -6$$

$$3x - 6 = y$$

$$6x - 2y = 2$$

$$-6x \quad -6x$$

$$\frac{-2y}{-2} = \frac{-6x + 2}{-2}$$

$$y = 3x - 1$$

$$y = 3x - 6$$

No Solution