

# Systems of Equations

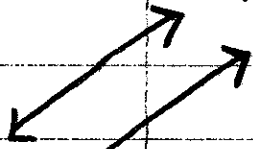
\* A system of equations has 2 or more linear equations\*

\* a SOLUTION to a system of equations is an ordered pair where the lines cross\*

## 3 Types of Systems

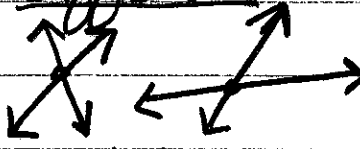
Parallel Lines

- same slope  
but different  
y-intercepts

  
NO  
SOLUTION

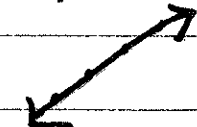
Intersecting Lines

- have to have  
different slopes

  
ONE  
SOLUTION  
- where the  
lines cross  
(ordered pair)

Same Line

- EXACT  
same slope  
+ y-intercept

  
INFINITE  
SOLUTION  
- all ordered  
pairs are  
in common

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

$$y = -3x + 5$$

Solution

$$\begin{matrix} (2, -1) \\ x \quad y \end{matrix}$$

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

$$y = -3x + 5$$

$$-1 = \frac{1}{2}(2) - 2$$

$$-1 = -3(2) + 5$$

$$-1 = 1 - 2$$

$$-1 = -6 + 5$$

$$-1 = -1$$

$$-1 = -1$$

True

True

\* b/c we got a true statement on both equations  $(2, -1)$  is a solution to this system \*