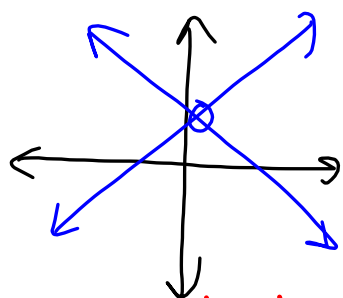


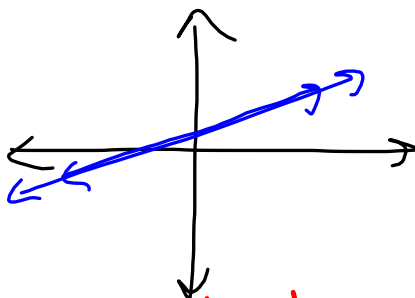
## Sec. 6.1 Solving Systems by Graphing

### Vocabulary

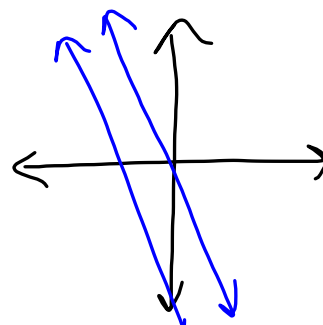
- system of linear equations: two or more linear equations
- solution of a system of linear equations: any ordered pair that makes ALL of the equations in a system true.
- consistent: a system has at least one solution
  - independent: one solution
  - dependent: infinitely many solutions
- inconsistent: a system that has no solution



consistent  
independent  
one solution



consistent  
dependent  
infinitely many  
solutions

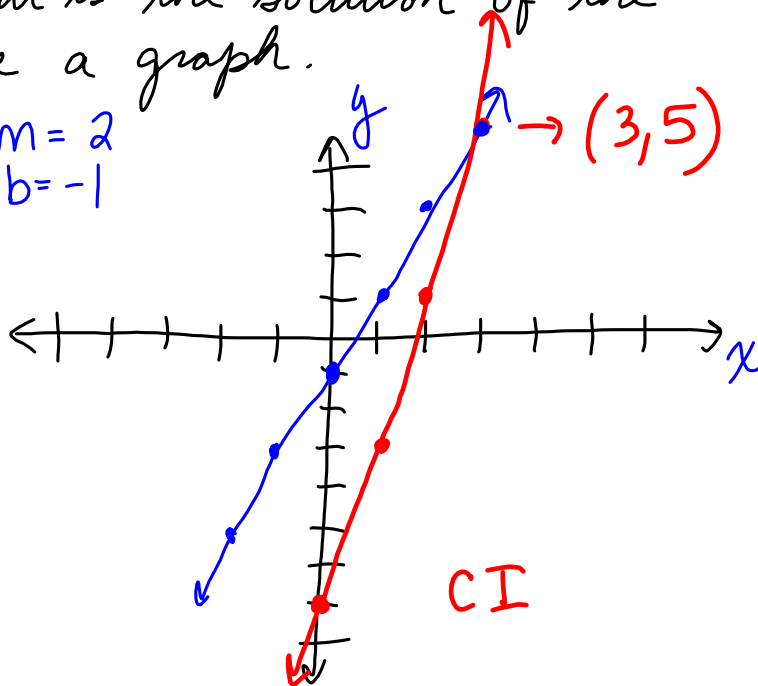


inconsistent  
no solution

Problem 1: What is the solution of the system? Use a graph.

$$y = 2x - 1 \quad \begin{matrix} m = 2 \\ b = -1 \end{matrix}$$

$$y = 4x - 7 \quad \begin{matrix} m = 4 \\ b = -7 \end{matrix}$$



Problem 2:

$$\frac{3y}{3} = \frac{1x}{3} - \frac{2}{3}$$

$$\frac{-6y}{-6} = \frac{-2x}{-6} + \frac{4}{-6}$$

$$y = \frac{1}{3}x - \frac{2}{3}$$

$$y = \frac{1}{3}x - \frac{2}{3}$$

$$m = \boxed{\frac{1}{3}}$$

infinitely

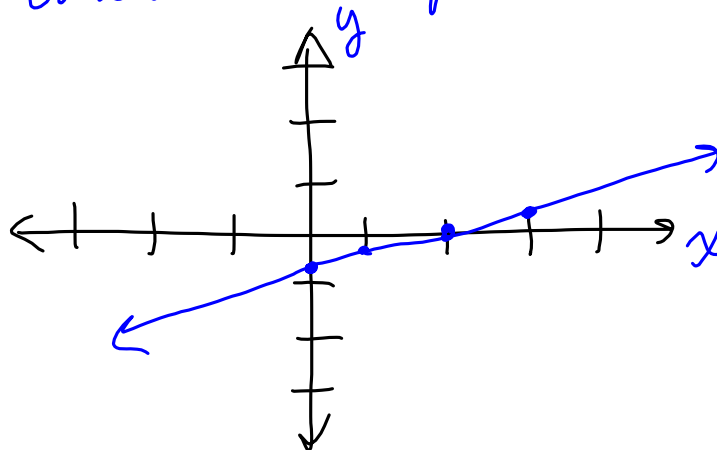
$$m = \frac{1}{3}$$

$$b = -\frac{2}{3}$$

many solutions

$$b = -\frac{2}{3}$$

consistent and dependent

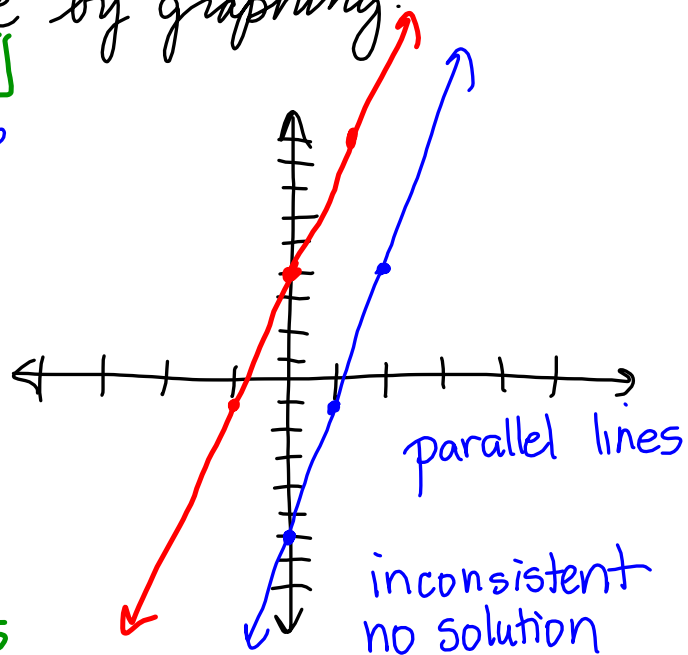


Problem 3: Solve by graphing.

$$y = 5x - 6 \quad \begin{matrix} m=5 \\ b=-6 \end{matrix}$$

$$y = 5x + 4 \quad \begin{matrix} m=5 \\ b=4 \end{matrix}$$

\* Parallel lines  
 - Same slope  
 - Different y-intercepts



Problem 4:

$$y = 3$$

$$x = -2$$

Horizontal  
 $0 = m$   
 $y = b$

Vertical  
 Undefined slope  
 $x = a$

