

**Algebra I**  
**Lesson 6.4 – Solving Special Systems**  
**Mrs. Snow, Instructor**

For review solve the following system of equations:

$$\begin{cases} y = x - 1 \\ -x + y = 2 \end{cases}$$

$$\begin{cases} y = 2x + 1 \\ 2x - y + 1 = 0 \end{cases}$$



Really? What is going on? The variables all dropped out. We were left with 2 statements; are the statements true or false? Graph the systems what do you find? Does the false statement graph out as parallel lines? The true as the same line?

**Vocabulary**

**Dependent system** – a system of equations that has infinitely many solutions. If graphed, the 2 equations will graph as the same line (Slopes and y-intercepts are the same). When solving algebraically, the variables will cancel out and you will have a **true statement**. Since there is at least one solution, this system is also **consistent**.

**Inconsistent** - systems that have no solutions. The graph will be of 2 parallel lines (*Parallel lines will have the same slope with different y-intercepts!*) When solved algebraically the variables will cancel out and you will be left with a **false statement**.

**Independent** – a system of equations that have only one unique solution. When graphed you will see 2 distinct lines intersecting at one point. Since one solution is “at least” one solution, this system is also **consistent**.

Classify the systems and give the number of solutions.

$$\begin{cases} x + 2y = -4 \\ -2(y + 2) = x \end{cases}$$

$$\begin{cases} y = -2(x - 1) \\ y = -x + 3 \end{cases}$$

$$\begin{cases} 2x - 3y = 0 \\ y = \frac{2}{3}x \end{cases}$$