Name: _____ Date:_____ Period: _____ **Review**

Unit 3 Review – Systems of Equations

Reviews do **NOT** cover all material from the lessons but will hopefully remind you of key points. To be prepared, you must study all packets from Unit 3.

3.1 Standard Form Equations of Lines

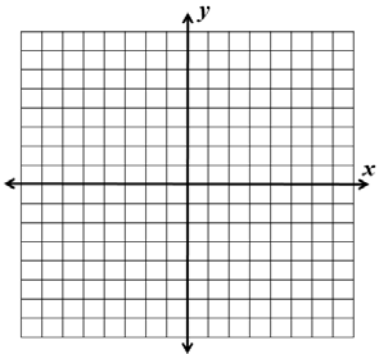
A solution of a two-variable equation is a coordinate pair (x, y). If this solution is substituted into an equation, then the equation is true. When ALL of these solutions are plotted on a coordinate grid, it creates the graph of a line.

1. Circle all the ordered pairs (x, y) that are solutions to $5x + 2y = -1$.

$(-5, 10)$ $(-3, 7)$ $(-1, 2)$ $(3, -8)$ $(4, -10)$

2. $x - 3y = 9$

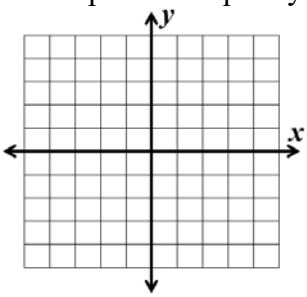
Know how to graph by solving for ***y*** or finding **intercepts**



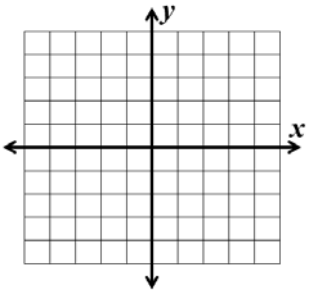
3.2 Systems of Inequalities

A solution set of an inequality are all the points on ONE SIDE of the line. The line is also included if it is an "or equal to" inequality represented by ≤ or ≥. To discover which side of the line is shaded, you can either use a test point like $(0, 0)$, or solve for y and shade above or below the line depending on if it is the greater than or less than symbol (respectively).

3. Graph the inequality $3x - y \leq 3$



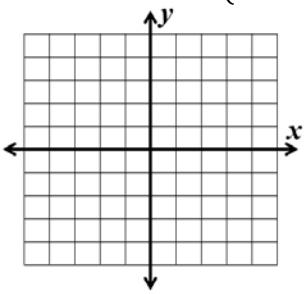
4. Graph the system of inequalities: $\begin{cases} x + y \geq 2 \\ x - 3y < 6 \end{cases}$



3.3 Graph Systems of Equations

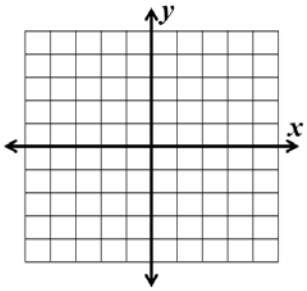
A system of equations will have one of three types of solutions.

5. One Solution $\begin{cases} x = -3 \\ y = -\frac{5}{3}x - 3 \end{cases}$



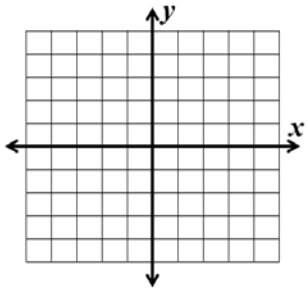
Answer: _____

6. No Solution $\begin{cases} 3x - y = -2 \\ 6x - 2y = 2 \end{cases}$



Answer: _____

7. Inf Solutions $\begin{cases} x + y = -4 \\ 3y = -3x - 12 \end{cases}$



Answer: _____

8. Don't forget how to solve with a graphing calculator! $\begin{cases} y = \frac{7}{2}x - 8 \\ y = -x + 8 \end{cases}$ Answer: _____

3.4 Substitution

A system can be solved algebraically through the Substitution Method. This is best used when one if the variables is easily isolated.

Solve by Substitution

1. Solve for one variable.
2. Substitute into the OTHER equation and solve.
3. Plug your answer into any equation and solve for the last variable.

9. One Solution $\begin{cases} x + 5y = 5 \\ -x + 6y = -5 \end{cases}$

Write or circle your answer below.

$x =$ _____ | Inf. Solutions or No Solution

$y =$ _____

10. No Solution $\begin{cases} -x + 3y = -2 \\ x - 3y = -2 \end{cases}$

Write or circle your answer below.

$x =$ _____ | Inf. Solutions or No Solution

$y =$ _____

11. Inf Solutions $\begin{cases} 2x - 8y = 20 \\ x - 4y = 10 \end{cases}$

Write or circle your answer below.

$x =$ _____ | Inf. Solutions or No Solution

$y =$ _____

3.5 Elimination

- Adding two equations together creates a third equation with the same intersection point.
- Opposite coefficients are needed to cancel a term, so you may have to manipulate one or both equations.

12. $\begin{cases} 6x - 4y = -8 \\ 3x + 8y = -14 \end{cases}$

Write or circle your answer below.

$x =$ _____ | Inf. Solutions or No Solution

$y =$ _____

13. $\begin{cases} 3x - 2y = 17 \\ 4x + 5y = -8 \end{cases}$

Write or circle your answer below.

$x =$ _____ | Inf. Solutions or No Solution

$y =$ _____

14. $\begin{cases} 2x + 10y = -14 \\ x + 5y = -7 \end{cases}$

Write or circle your answer below.

$x =$ _____ | Inf. Solutions or No Solution

$y =$ _____