**Solving Systems of Equations Notes**

Graphing:

Equations must be in \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ form to graph them.

Standard Form: Ax + By = C

Slope-Intercept Form: y = mx + b

To rearrange from standard form to slope-intercept form, subtract Ax, then divide by B (if there is a B).

Ax + By = C

 -Ax -Ax (subtract “Ax”)

By = -Ax + C

 B (divide by “B”)

Y = mx + b (“C” changes to “b”, which is your y-intercept)

 (“-A/B” changes to “m”, which is your slope)

Example: Solve the system of equations by graphing

 -2x + y = 5 Rearrange both equations into slope-intercept form:

 x + y = 8 \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Graph each equation:

 Solution is where the lines cross,

 And must be written as an

 \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_.

 Parallel lines have \_\_ \_\_\_\_\_\_\_\_\_.

Same lines have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Substitution:

y = x + 11

y = 12x

1. Rearrange one equations so it reads “y =” or “x =”.
2. Substitute that expression into the other equation.

y = 12x y = x + 11

 12x = x + 11

1. Solve for x: 12x = x + 11
2. Substitute value for x into first equation and solve for y.

y = 12x

1. Write solution as an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_.

More examples:

1. –x + y = 10 3) 2x – 3y = -1

y = -2x y = x – 1

1. -4x + y = 6 4) -3x + 3y = 1

-5x – y = 21 -x + y = 3