Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Solving Systems of Equations**

**A. Graphing:**

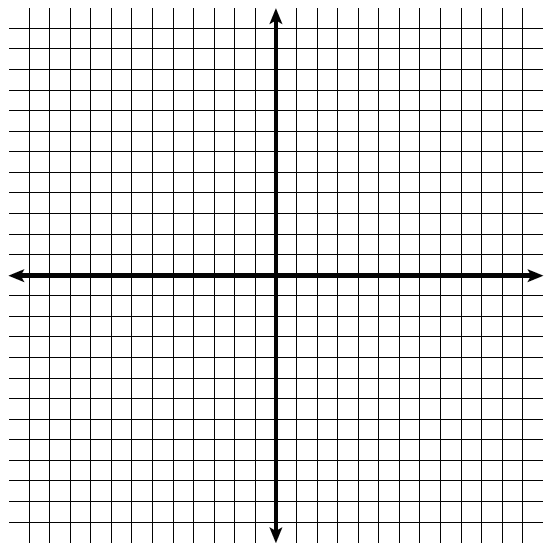
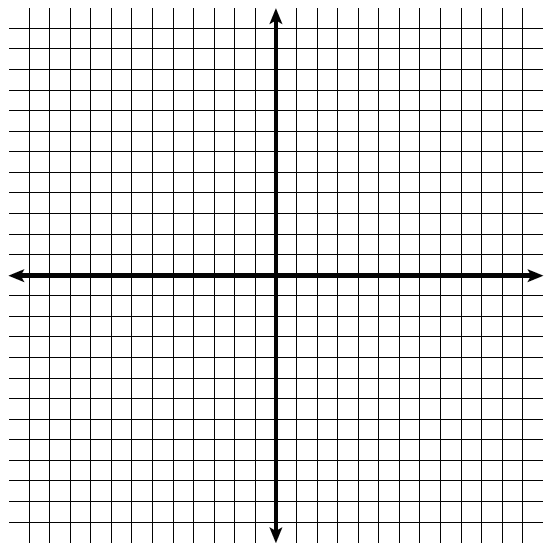
1. Write equations in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Graph both equations.

3. \_\_\_\_\_\_\_\_\_\_\_ is where the two lines intersect.

**Example 1:** y = x + 3 **Example 2:** y = 4x - 11

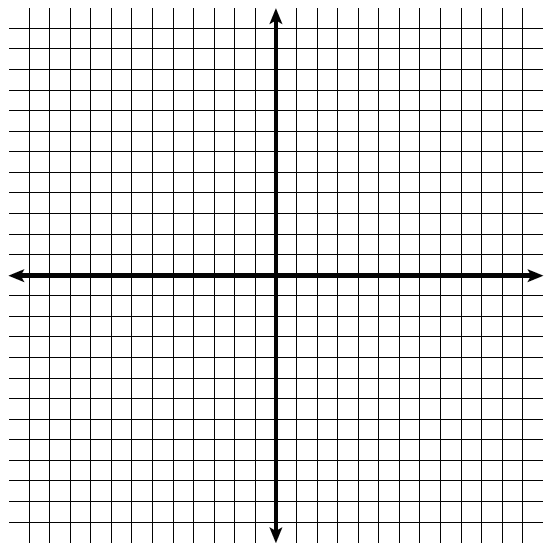
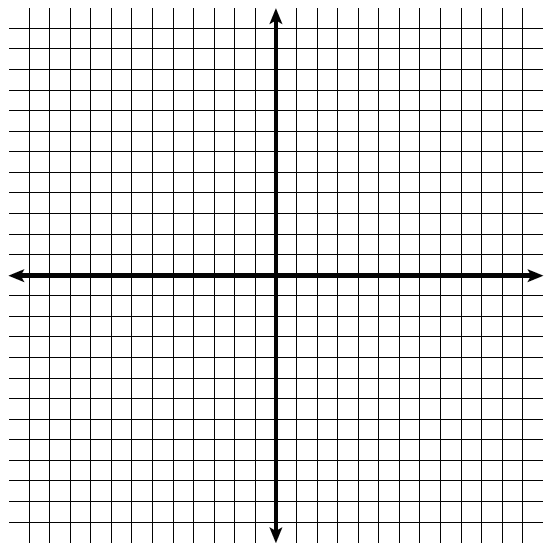
y = 2x + 5 y = -3x + 3



Solution: \_\_\_\_\_\_\_\_\_\_ Solution: \_\_\_\_\_\_\_\_\_\_

**Example 3:** y = -x + 4 **Example 4:** y = ½x + 2

2y + 2x = 8 2y = x - 6



Solution: \_\_\_\_\_\_\_\_\_\_ Solution: \_\_\_\_\_\_\_\_\_\_

**B. Transitive:**

1. For equations already in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Set equations up \_\_\_\_\_\_\_\_ to each other.

3. Solve for \_\_\_\_\_\_\_\_.

4. Plug the value of x into one of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to solve for y.

**Example 1:** y = x + 4 **Example 2:** y = -3x + 2

y = -x – 4 y = -x - 8

If x = \_\_\_\_\_ then y = \_\_\_\_\_ If x = \_\_\_\_\_ then y = \_\_\_\_\_

Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_ Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Example 3:** y = 2x + 9 **Example 4:** y = 3x + 5

y = -8 + 2x y = 3x - 10

If x = \_\_\_\_\_ then y = \_\_\_\_\_ If x = \_\_\_\_\_ then y = \_\_\_\_\_

Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_ Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_

**C. Substitution:**

1. Set up one equation in \_\_\_\_\_\_\_\_\_\_\_.

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the expression from Step 1 into the other equation and

solve for the other variable.

3. Substitute the value from step 2 into either \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and solve for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Example 1:** -3x + y = 1 **Example 2:** 3x + y = 8

4x + y = 8 6x + 2y = 16

If x = \_\_\_\_\_ then y = \_\_\_\_\_ If x = \_\_\_\_\_ then y = \_\_\_\_\_

Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_ Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Example 3:** 2x – 3y = -24 **Example 4:** 3x + y = 11

x + 6y = 18 -2x + y = 1

If x = \_\_\_\_\_ then y = \_\_\_\_\_ If x = \_\_\_\_\_ then y = \_\_\_\_\_

Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_ Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_

**D. Elimination:**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the equations to eliminate one variable.

2. \_\_\_\_\_\_\_\_\_\_\_\_ the resulting equation for the other variable.

3. Substitute the value into either \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to find the value of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ variable.

**Adding**:

**Example 1:** 2x – 3y = 12 **Example 2**: 2x + 2y = -2

x + 3y = 6 3x – 2y = 12

If x = \_\_\_\_\_ then y = \_\_\_\_\_ If x = \_\_\_\_\_ then y = \_\_\_\_\_

Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_ Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Subtracting**:

**Example 3**: 3x + 3y = 6 **Example 4:** 6x – 3y = 6

3x - y = -6 6x + 8y = -16

If x = \_\_\_\_\_ then y = \_\_\_\_\_ If x = \_\_\_\_\_ then y = \_\_\_\_\_

Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_ Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_