**Elimination Method for Solving Systems**

**Remember:**

a system of equations is simply two equations of line.

A system of equations could look like this:

 3x + 2y = 8

-x + 6y = 9

Notice that **BOTH EQUATIONS ARE IN GENERAL FORM** 🡪 *use elimination method*

* *Step 1 – multiply the equations by a number that will allow both equations to have the same coefficient for x*

 -1 ( 3x + 2y = 8 )

3 ( -x + 6y = 9 )

* *Step 2 – Subtract the two equations and solve for the unknown*

-3x + 18y = 27

-3x + -2y = -8

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-20y = -35
y = 1.75

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* *Step 3 – Plug the y value back into one of the equations and solve for x*

3x + 2y = 8

3x + 2(1.75) = 8

X = 1.5

* *Step 4 – Put your answer in the form of a (x, y) coordinate*

SS = (1.5, 1.75)

**Example 1:**

5x + 8y = 29
3x + 6y = 21

3(5x + 8y = 29) 🡪 15x + 24y = 87
5(3x + 6y = 21) 🡪 15x + 30y = 105

15x + 24y = 87

15x + 30y = 105

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-6y = -18

-6y = -18

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 -6 -6

Y = 3

5x + 8y = 29
5x + 8(3) = 29
5x + 24 = 29
5x = 29 – 24
5x = 5
x = 1

ss = (1, 3)

**Example 2:**

2x + 3y = 13

X – 2y = -4

2x + 3y = 13

2(x – 2y = -4) 🡪 2x – 4y = -8

2x + 3y = 13

2x – 4y = -8

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7y = 21

7y = 21

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 7 7

 Y = 3

x – 2y = -4
x – 2( 3) = -4
x – 6 = -4
x = -4 + 6
x = 2

ss = (2, 3)