Solving Systems of Equation Using Elimination

SOLVING SYSTEMS OF EQUATIONS:

• So far, we have solved systems using graphing and substitution. We will now solve systems algebraically using

elimination with addition and subtraction/

• The equations in the system must be in standard form in order to use

elimination

Standard Form:

EXAMPLE 1:

Solve the system using elimination: x + y = 53x - y = 7

Step 1: Put the equations in Standard Form

Step 2: Determine which variable to eliminate

Step 3: Add or subtract the equations

Step 4: Plug back in to find the other variable

EXAMPLE 2:

Solve the system using elimination: 4x + y = 74x - 2y = -2

Step 1: Put the equations in Standard Form

Step 2: Determine which variable to eliminate

Step 3: Add or subtract the equations

They a ready are

The _____ have the same coefficient.

Add to eliminate (different signs)

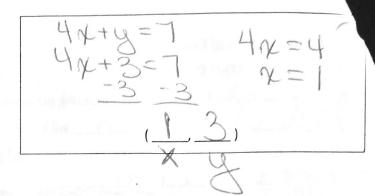
4x = 12 x+y=5 x = 3 3+y=5y = 2

They already are

The _____ have the same coefficient.

Step 4: Plug back in to find the other variable

* change all the signs for 2nd equation, then Add



SOLVING A SYSTEM OF EQUATIONS BY ELIMINATION USING MULTIPLICATION

EXAMPLE 3:

Solve the system using elimination: 2x + 2y = 63x - y = 5

Step 1: Put the equations in Standard Form

Step 2: Determine which variable to eliminate

Step 3: Multiply the equations and then add

Step 4: Plug back in to find the other variable

They already are.

None of the coefficients are the Same

Find the least common multiple

LCM = OX LCM = 21

Which is easier to obtain?

Ac one equation has 24

Multiply the ______equation by

+ 2x+2y=10

Sx = 10

X = 2

2x+2y=62(2)+2y=6

25=2

(21)

EXAMPLE 4:

Solve the system using elimination: x = -4y + 74x - 3y = 9

Step 1: Put the equations in Standard Form

Step 2: Determine which variable to eliminate

Step 3: Multiply the equations and then add

Step 4: Plug back in to find the other variable

$$x = -4y + 7$$

$$+4y + 4y$$

$$X + 4y = 7$$

Find the $\frac{1}{1}$ LCM = $\frac{1}{1}$ Which is easier to obtain?

Multiply the
$$\frac{+}{3}$$
 equation by $\frac{-}{4}$

$$\frac{-}{4}$$

$$\frac{-}{4}$$

$$\frac{-}{4}$$

$$\frac{-}{4}$$

$$\frac{-}{3}$$

$$\frac{-}{9}$$

$$\frac{-}{9}$$

$$x + 40 = 7$$
 $x + 407 = 7$
 $x + 4 = 7$
 $x = 3$