

Elimination using Multiplication

Consider the system

$$\begin{array}{l} 3(1x + 2y = 6) \\ 3x + 3y = -6 \end{array}$$

How are they related?

What could we do to equation 1 to make the "x" equal?

$$\begin{array}{l} - 3x + 6y = 18 \\ 3x + 3y = -6 \end{array}$$

multiply equation 1 by 3

Elimination using Multiplication

Consider the system

$$\begin{array}{l} x + 2y = 6 \\ 3x + 3y = -6 \end{array}$$

How are they related?

What could we do to equation 1 to make the "x" equal?

multiply equation 1 by 3



Elimination using Multiplication

Consider the system

$$\begin{array}{r} 3x + 6y = 18 \\ 3x + 3y = -6 \end{array}$$

Now subtract the equations



Elimination using Multiplication

Consider the system

$$3x + 6y = 18$$

$$\underline{-3x - 3y = +6}$$

Now subtract the equations

Answer



Elimination using Multiplication

Consider the system

$$3x + 6y = 18$$

$$-3x - 3y = +6$$

$$\hline 3y = 24$$

$$y = 8$$

Now subtract the equations

Sub into equation 1 (original) or the above

$$x + 2y = 6$$

$$x + 2(8) = 6$$

$$x + 16 = 6$$

$$x = 6 - 16$$

$$x = -10$$

$$(-10, 6)$$

You Try

1)

$$x + 2y = 5$$

$$2x + 6y = 12$$

ANS: (3, 1)

2)

$$x + 2y = 4$$

$$3x - 4y = 32$$

ANS: (8, -2)