

Welcome to math!

1. Put your homework on your desk
2. Solve the following system of equations using graphing.
Then solve it again using substitution.

$$18x + 2y = 6$$

$$y = -x + 3$$

Announcements

- You'll get your test back sometime this week... still waiting on a few people to take it.
- You're Unit 7 Test (Systems of Equations) is Friday
 - **Monday - Solving Systems of Equations using Elimination**
 - Tuesday - Practice with all three methods
 - Wednesday - Word Problems
 - Thursday - Review Day
 - Friday - Systems of Equations Test

Homework Check

Solving Systems of Equations (Elimination)

12/3/2018

So far...

We know how to solve systems of equations by graphing them by hand... this is great but takes a lot of time, it's easy to make a mistake, and it's impossible to get it right if there is a fraction.

We know how to solve systems of equations by graphing them on the calculator... this is great but we might not always have our calculators.

We know how to solve systems of equations by substitution... this is great but sometimes it's a pain to solve for one variable first.

Today we will add elimination to our tool belt for solving systems of equations.

Solving Systems of Equations with Elimination

Elimination method uses properties to add or subtract equations in order to eliminate a variable in a system

Solving a system by adding equations

Step 1 - Eliminate one variable

Step 2 - Substitute the solution for x to solve for the eliminated variable

Step 3 - Write your solution as a solution set

Solving a system by elimination

$$2x + 5y = 17$$

$$6x - 5y = -9$$

Why are we allowed to do that??

<https://www.khanacademy.org/math/algebra-home/alg-system-of-equations/alg-equivalent-systems-of-equations/v/solving-systems-of-equations-by-elimination>

You try - Solve the system of equations with elimination

$$5x - 6y = -32$$

$$3x + 6y = 48$$

You try - Solve the system of equations with elimination

$$-3x - 3y = 9$$

$$3x - 4y = 5$$

You may encounter something like this...

$$-2x + 15y = -32$$

$$7x - 5y = 17$$

At first glance, it may appear that you cannot use elimination to solve this system of equations, but if we get creative...

You can use the multiplication property of equality to change one equation so that you can use elimination!

So let's look again at the problem we thought was impossible

$$-2x + 15y = -32$$

$$7x - 5y = 17$$

You try - Solve the system of equations with elimination

$$-5x - 2y = 4$$

$$3x + 6y = 6$$

Tonight's homework

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