**Solve the
system of linear
equations by
graphing**

$y = 2x + 6$
$y = -2x - 2$

5-2 solving a system of linear equations by substitution:

EQ: How can you solve a system of linear equations?
1.) graphing
2.)

Method 1:
Solve for x first.
Solve for x in one of the equations. Use the expression for x to find the solution of the system. Explain

Method 2: Solve for y first
Solve for y in one of the equations. Use the expression for y to find the solution of the system. Explain

a.) $6x - y = 11$
  $2x + 3y = 7$

b.) $2x - 3y = -1$
  $x - y = 1$

Follow up questions:

1.) What does it mean to solve a system of linear equations?

2.) If there were only one linear equation with one variable, would you be able to solve it?

3.) Can you see a way to use this system to get an equation with one variable?

Example 1
Solving a system of linear
equations by substitution

1.) $y = 2x - 4$
$7x - 2y = 5$

Step 1: Equation 1 solved
for y (slope int. form)

Step 2: Substitute 2x - 4 for
y in Equation 2

Step 3: Substitute -1 for x
in Equation 1 and solve for y

Practice:

1.) $y = 2x + 3$
$y = 5x$

2.) $4x + 2y = 0$
$y = 1/2x - 5$

3.) $x = 5y + 3$
$2x + 4y = -1$

Example 2:
Real life application

You buy a total of 50 turkey burgers and veggie burgers for $90.   You pay $2 per turkey burger and $1.50 per veggie burger. Write and solve a system of linear equations to find the number x of turkey burgers and the number y of veggie burgers you buy.

Practice

You sell lemonade for $2 per cup and orange juice for $3 per cup. You sell a total of 100 cups for $240. Write and solve a system of linear equations to find the number of cups of lemonade and the number of cups of orange juice you sold.

What are the two ways we learned to solve a system of linear equations?

Answer EQ

Example:

Solve: