

Use elimination to solve the system of equations.

$$2a + b = 19$$

$$3a - 2b = -3$$

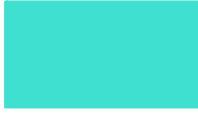
 **(5, 9)**

Use substitution to solve the system of equations.

$$2x + y = 3$$

$$-x + 3y = -12$$


$$y = (-2x + 3)$$

 **(3, -3)**

Use graphing to solve the system of equations.

$$-3x + 4y = 24$$

$$4x - y = 7$$

 **(4, 9)**

? ? ?  
**Questions**  
?  
? on ? ? ?  
? ?  
**Homework**  
?  
?  
? ?

# LESSON 6-5 Applying Systems of Linear Equations

**I can...** choose the best method to solve systems of equations and use this to solve real world situations. Substitution, Elimination and Graphing.

## How to determine which way to solve....

**Graphing**: both y's are alone  
and its got good intercepts

If answer is exact. If not exact then you leave an estimate of what it should be.

## Substitution

When a variable is alone. (It has a 1 or -1 next to it)

$$x = 2y - 3$$

$$3x - 7y = 10$$

Elimination

or Almost alone

$$x - 3y = 7$$

$$2x + 4y = 8$$

If you have opposites.

If you can make opposites (mult by -1) (or mult by other)

$$2x + 3y = 6$$

$$-2x + 10y = 20$$

$$2x + 3y = 6$$

$$2x + 10y = 20$$

$$x + 3y = 7$$

$$5x - 10y = 2$$

★ If substitution LOOKS horrible then try Elim.

Determine the best method to solve the system of equations.  
Explain WHY! Complete the first step.

$$2x + 3y = 23$$

Elimination

$$4x + 2y = 34$$

$$\begin{array}{r} -4x - 6y = -69 \\ \hline -4y = -35 \end{array}$$

$$x = (3.6y + 0.7)$$

SUBST.

$$2x + 0.2y = 38.4$$

$$2(3.6y + 0.7) + 0.2y = 38.4$$

$$4x + y = 24$$

$$5x - y = 12$$

Determine the best method to solve the system of equations.  
Explain WHY! Complete the first step.

$$18x - 16y = -312$$

$$78x - 16y = 408$$

$$y = 3x - 24$$

$$5x - y = 8$$

$$5.3x - 4y = 43.5$$

$$x + 7y = 78$$

**POOL PARTY** At the school pool party, Mr. Lewis bought 1 adult ticket and 2 child tickets for \$10. Mrs. Broom bought 2 adult tickets and 3 child tickets for \$17. What is the price of adult tickets and children's tickets?

Determine the best method to solve the system of equations. Then solve the system.

1. Define your variables.
2. Write the equations.
3. Solve/Verify (best method)
4. Answer as a sentence.

$x$ : price of adults  
 $y$ : price of kids

$$\begin{array}{r} -2x + 2y = 10 \\ 2x + 3y = 17 \\ \hline + -2x - 4y = -20 \\ \hline 0 - y = -3 \\ -y = -3 \\ \hline y = 3 \end{array}$$

$$\begin{array}{r} x + 2(3) = 10 \\ x + 6 = 10 \\ -6 \quad -6 \\ \hline x = 4 \end{array}$$

$(4, 3)$

Adults cost \$4.00  
and kids cost \$3.00.

**CAR RENTAL** Ace Car Rental rents a car for \$45 and \$0.25 per mile. Star Car Rental rents a car for \$35 and \$0.30 per mile. How many miles would a driver need to drive before the cost of renting a car at Ace Car Rental and renting a car at Star Car Rental were the same?

$x$ : # of miles

$y$ : total cost

Ace  
 $y = (.25x + 45)$

Star  
 $y = .30x + 35$

$$.25x + 45 = .30x + 35$$

# Stations:

Start on any one you want!

However order matters. After completing a station you must walk around the room and find the station that has the answer on it!

If you can't find your answer try the station over again.

Keep going until all 8 are finished!

DUE: 6.4 Bkpgs

Solve Catering Equations by Elimination and Create a Scatter Plot for the Previous Years Proms

## Homework 6.5

### Worksheet

**Draw a line of Trend on your Scatter Plot and write an equation. Predict the amount of students who will come to this years prom.**

