8.2 CA
Substitution Method

Name: _____
Date: _____ Period: _____

Essential Question: How can you determine the number of solutions for a system of equations?

Goal: I can solve and check a linear system using the substitution method.

Steps:

- Solve one of the equations for one of its variables
  - **(Solving for "y" might be your best bet or the one that has a coefficient of 1)**
- Substitute your expression from Step 1 into the other equation and solve for the other variable.
- Substitute the value from Step 2 into the revised equation from Step 1 and solve.
- Check the solutions in each of the original equations.

Solve the following system of equations.

1) $x = 3y$ $-3x + 3y = 6$ ***Answer:***	**YT 1)** $2x + 6y = 15$ $x = 2y$ ***Answer:***
2) $y = 3x - 13$ $2x + 2y = -10$ ***Answer:***	**YT 2)** $y = 3x - 8$ $4x - 2y = -1$ ***Answer:***
3) $6x + y = -5$ $2x - 3y = 10$ ***Answer:***	**YT 3)** $4x + y = 12$ $-2x - 3y = 14$ ***Answer:***

4) $9x - 3y = 15$ $-3x + y = -5$ ***Answer:***	**YT 4)** $4x - 2y = 5$ $2x - y = 3$ ***Answer:***

4. Find the value of two numbers if their sum is 12 and their difference is 4.

Let...

Eq 1:

Eq 2:

5. The difference of two numbers is 3. Their sum is 13. Find the numbers.

Let...

Eq 1:

Eq 2:

6. A rectangle's length is equivalent to three times the width. If the perimeter is 80 cm, find the dimensions of the rectangle.

Let...

Eq 1:

Eq 2:

7. On Monday, Joe bought 10 cups of coffee and 5 doughnuts for his office at the cost of $16.50. It turns out that the doughnuts were more popular than the coffee. On Tuesday, he bought 5 cups of coffee and 10 doughnuts for a total of $14.25. Write a system of equations to determine how much each cup of coffee and each doughnut cost.

Let...

Eq 1:

Eq 2:

8. For lunch you go to Taco Bell and order 7 tacos and 2 sodas for $13. That same night, you go to Taco Bell for dinner and order 4 tacos and 1 soda for $7.25. Write a system of equations to determine the individual price of a taco and a soda.

Let...

Eq 1:

Eq 2:

Lesson Summary:

9. Did this student solve this system of linear equations correctly? (Strategy: You can always work backwards!)

System: $y = -2x + 4$, $x - y = 2$ **Answer:** (3 , -2)