4C Systems: Substitution

Name: _____ Per: _____

SHOW YOUR WORK FOR FULL CREDIT. NO WORK, NO CREDIT. NO WORK IN PEN.

OBJECTIVE: Find solution(s) from a system of equations by setting equal OR substitution

Solve the following using **SUBSTITUTION**. Be sure to find **BOTH x and y**. **CHECK** your answers.

1. $\begin{cases} y = 4x - 2 \\ -6x + y = 4 \end{cases}$

$-6x + (\quad\quad) = 4$

2. $\begin{cases} y - x = -4 \\ y - 4 = 3x - 4 \end{cases}$

3. $\begin{cases} x = 3y - 2 \\ 4x + y = x + 4 \end{cases}$

Solve for x:

Find y:

Solution: (____, ____)
Check:(   ) = 4(   ) − 2

Solution: _____
Check:

Solution: _____
Check:

$-6x + (\quad) = 4$

Solve the following using **any method**. Be sure to find **BOTH x and y**. **CHECK** your answers.

4. $\begin{cases} 6x + 7y = -3 \\ y = x + 7 \end{cases}$

5. $\begin{cases} 16x + 2y = 6 \\ y = -8x - 8 \end{cases}$

6. $\begin{cases} y = -3x + 5 \\ x - 2y = 4 \end{cases}$

Solution: _____
Check:

Solution: _____
Check:

Solution: _____
Check:

7. Debra is starting a catering business and is attempting to figure out who she should be using to transport the food to different locations. Peter's Pick Up charges $0.40 per mile and charges a flat fee of $68. Helen's Haulers charges $0.65 per mile and charges a one-time fee of $23.

   a. Define your variables.

   b. Write TWO equations

   c. Solve the system of equations

   d. Explain what the solution means. _____

8. Brigham is planning a ski trip and wants to figure out which mountain offers the best deal. Brigham needs to rent skis and buy a lift ticket. He researched his options, and he found the following two packages which include ski rental and lift ticket.

Zippity Ski Slopes Rental Package $5 + $5 each hour	Cruising Ski Slopes Rental Package $20 + $2 per hour

   a. Write equations to represent each package.

   b. Solve the system of equations.

   c. Explain what the solution means? _____

   d. If Brigham is planning to ski for 6 hours, which company should he use_____ WHY?

   _____

9. Morgan went shopping and she spent $131 on shirts. Sweat shirts cost $28 and t-shirts cost $15. She bought a total of 7 shirts.
   a. Define your variables.

   b. Write a system of equations

   b. Solve the system of equations and find out how many sweat shirts and t-shirts she bought.

10. $\begin{cases} y = -5x + 7 \\ 10x + 2y = 5 \end{cases}$ Hailey says the system of equations has no solutions. Is she right or wrong? _____

   Show your work and explain.

11. **Use the map to find a National Treasure.**

   The solution to the linear inequality system will send you right to the location of the treasure! The treasure will be located at the section that satisfies the system. Graph the following inequalities to find the treasure.

   $2x + 3y < 18$ $-4x - 4y < 8$

   $-3x + 4y < 12$ $y > -5$

   $x < 12$ $4x - 5y < 20$