

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_



## SOLVING SYSTEMS BY SUBSTITUTION WORKSHEET

Example: Solve the system  $\begin{cases} x + y = 5 \\ 2x - y = 4 \end{cases}$  by substitution.

Step One: Solve one equation for one of the variables.  $y = 5 - x$

Step Two: Substitute the expression from Step One into the other equation. Make sure to use parentheses!!

$$2x - (5 - x) = 4$$

$$2x - 5 + x = 4$$

$$3x - 5 = 4$$

$$3x = 9$$

$$x = 3$$

Step Three: Substitute the value from Step Two into the equation from Step one and solve for the

$$y = 5 - x$$

remaining variable.  $y = 5 - 3$

$$y = 2$$

Step Four: Write your answer as an ordered pair and plug it in to both of the original equations to see if the point is true for both.  $(3, 2)$

**Directions:** Solve each system and find the solution. Write your solution as an ordered pair. Make sure to check your solution.

1.)  $\begin{cases} 2x + 8y = 1 \\ x = 2y \end{cases}$

2.)  $\begin{cases} 3x + y = 5 \\ 2x - y = 10 \end{cases}$

3.)  $\begin{cases} 4a + 3b = 13 \\ a + b = 4 \end{cases}$

$$4.) \begin{cases} 2x + y = -92 \\ 2x + 2y = -98 \end{cases}$$

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

$$6.) \begin{cases} 3x + y = 7 \\ 2x + 2y = 6 \end{cases}$$

$$7.) \begin{cases} w - 4z = -5 \\ w + 2z = 7 \end{cases}$$

$$8.) \begin{cases} d = c + 5 \\ d = 2c - 7 \end{cases}$$

$$9.) \begin{cases} 4a - 7b = 34 \\ 2b = 8a + 4 \end{cases}$$

$$10.) \begin{cases} 2x - 8y = 6 \\ y = -7 - x \end{cases}$$

$$11.) \begin{cases} 4x + 3y = 7 \\ 2x + 4y = 16 \end{cases}$$

12.) Bill has \$2.00 in quarters and dimes. The number of quarters is 4 less than twice the number of dimes. Find the number of coins of each type.

13) The larger of two complementary angles is 12 more than 5 times the measure of the smaller. Find the measures of the two angles.