3.3H Systems: Elimination Name: _____ Per: _____
SHOW YOUR WORK FOR FULL CREDIT. NO WORK IN PEN.

Solve the following systems using the **elimination method. Check your solution**.

1. $\begin{cases} 2x + 2y = 17 \\ -4x + 2y = 20 \end{cases}$

2. $\begin{cases} 8x + 14y = 4 \\ -6x - 7y = -10 \end{cases}$

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

Solution: _____

Solution: _____

Solution: _____

Choose **any method** to solve the system of equations. **Check your solution**.

4. $\begin{cases} -7x + y = -19 \\ -2x + 3y = -19 \end{cases}$

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

6. $\begin{cases} 3(x - 1) = 2y \\ 2y = 3x + 2 \end{cases}$

7. $\begin{cases} 7x + 2y = 24 \\ 4x + y = 15 \end{cases}$

Solution: _____

Solution: _____

Solution: _____

Solution: _____

8. A test has twenty questions worth 100 points. The test consists of True/False questions worth 3 points each and multiple-choice questions worth 11 points each.
   a. Define your variables.

   b. Write a system of equations

   c. Use your equation to find out how many multiple-choice questions AND True/False questions are on the test.

Clarita and Carlos run a pet sitting company. Clarita is upset with Carlos because he has been buying cat and dog food without recording the price of each type of food in their records. Instead, Carlos has just recorded the total price of each purchase. Carlos is now trying to figure out the price of each type of food by reviewing some recent purchases. See if you can help him figure out the cost of items that he purchased.

For each of the situation, **write two equations** and **solve the system any method** you would like to find the price each item in the following problems.

9. One week Carlos bought 5 bags of Tiny Tidbits and 4 bags of Fabulous Flakes for $43.00.
   The next week he bought 5bags of Tiny Tidbits and 6 bags of Fabulous Flakes for $54.00.

10. Another time Carlos bought 2 bags of Brutus Bites and 3 bags of Lucky Licks for $42.50. The next week he bought 5 bags of Brutus Bites and 6 bags of Lucky Licks for $94.25.
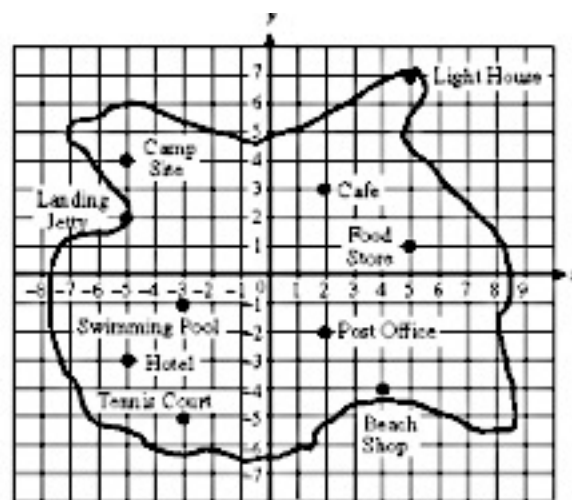
11. One week Carlos bought 2 packages of dog bones and 4 packages of cat treats for $18.50. Because the picky cats didn't like the cat treats, the next week Carlos returned 3 unopened packages of cat treats and bought 2 more packages of dog bones. After being refunded for the cat treats, Carlos only had to pay $1.00 for his purchase.

Use the map for the following systems of inequality question.

12. Search and rescue team is looking for a lost boy. They get a map of the island and using a coordinate grid decide to divide up into teams. Each team will search their area using the following inequalities. Use a different color for each team.

A: $y \leq \frac{1}{3}x + 4$ B: $y - x \geq 2$ C: $y > -3x + 7$

a. What landmark (if any) is NOT being searched by a search team.

b. Find the area that will be searched by all three teams.

Extra Credit: Solve the following system of 3 equations
$$-x - 5y - 5z = 2$$
$$4x - 5y + 4z = 19$$
$$x + 5y - z = -20$$