Name: _____ Class: _____

Systems of Equations Day One: Systems Word Problems

1. A system of equations is given below.

$$x + 2y = 5$$
$$2x + y = 4$$

Which system of equations does *not* have the same solution?

1) $3x + 6y = 15$
   $2x + y = 4$

2) $4x + 8y = 20$
   $2x + y = 4$

3) $x + 2y = 5$
   $6x + 3y = 12$

4) $x + 2y = 5$
   $4x + 2y = 12$

2. Consider the system of equations below.

$$3x + 2y = 20$$
$$x - y = -5$$

(a) Which system(s) below share(s) the same solution? How can you tell?

$3x + 2y = 20$ $5x = 10$	$4x + y = 15$ $x - y = -5$	$3x + 2y = 20$ $5y = 35$

3. Find the value of the y-coordinate to the system of equations $2x + y = 8$ and $x - 3y = -3$

4. The equations $6x + 5y = 300$ and $3x + 7y = 285$ represent the money collected from selling gift baskets in a school fundraising event. If x represents the cost for each snack gift basket and y represents the cost for each chocolate gift basket, what is the cost for each chocolate gift basket?

5. Solve the following system of equations *algebraically*:

$$3x + 2y = 4$$
$$4x + 3y = 7$$

6. Regents Cinema sold 180 tickets to a movie. Some of these were "regular" tickets and the rest were "premiere" tickets. A regular ticket cost $5.25 and a premiere ticket cost $9.50. If the cinema sold $1,081 worth of tickets, create and solve a system of equations that could be used to determine how many regular tickets, r, and how many premiere tickets, p, were sold.

7. The sum of two numbers is 47, and their difference is 15. What is the larger number? Solve *algebraically* using a system of equations.

8. Mary's farm sold a total of 295 pounds of apples and peaches and made $531.25. If a pound of apples cost $1.25 and a pound of peaches cost $2.50, how many peaches did Mary's farm sell?

9.
A system of equations is shown below.

Equation A: $5x + 9y = 12$
Equation B: $4x - 3y = 8$

Which method eliminates one of the variables?

(1) Multiply equation A by $-\frac{1}{3}$ and add the result to equation B.
(2) Multiply equation B by 3 and add the result to equation A.
(3) Multiply equation A by 2 and equation B by -6 and add the results together.
(4) Multiply equation B by 5 and equation A by 4 and add the results together.

10.
At the present time, Mrs. Bee's age is six years more than four times her son's age. Three years ago, she was seven times as old as her son was then.

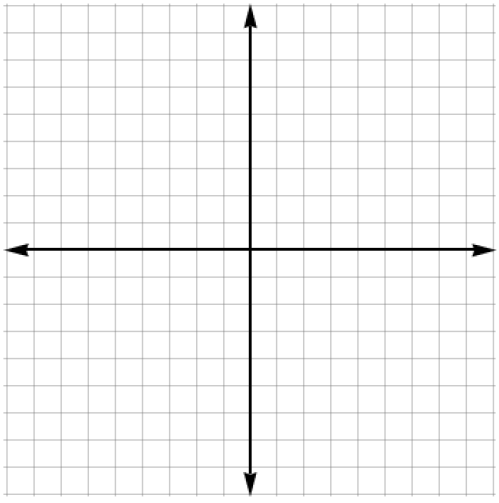
If b represents Mrs. Bee's age now and s represents her son's age now, write a system of equations that could be used to model this scenario.

Use this system of equations to determine, algebraically, the ages of both Mrs. Bee and her son now.

Determine how many years from now Mrs. Bee will be three times as old as her son will be then.

11. Use a graph to find all value(s) of x that solve the system of equations shown below.

$$y = 2|x + 1| - 8$$
$$y = x - 1$$



12. At Ron's Rental, a person can rent a big-screen television for $10 a month plus a one-time "wear-and-tear" fee of $100. At Josie's Rental, the charge is $20 a month and an additional charge of $30 for delivery with no "wear-and-tear" fee.

1. If c equals the cost, write one equation representing the cost of the rental for m months at Ron's Rental and one equation representing the cost of the rental for m months at Josie's Rental.

2. On the accompanying grid, graph and label *each* equation (use your calculator to create a table and plot points)

3. From your graph, determine in which month Josie's cost will equal Ron's cost.