1. Graph by hand to find the solution to this system of equations. Give the solutions as ordered pairs.

a) $y = -\frac{1}{2}x + 2$

$6x - 12y = 48$

b) $y = -2x$

$6x - 3y = 12$

2. Solve each system of equations using substitution. Give the solution as an ordered pair.

a) $5x - 7y = 162$

$4x + 2y = -106$

b) $a + b = -5$

$2a + 5b = -22$

c) $d = 5c + 3$

$20c - 4d = -12$

3. Solve each system of equations using elimination. Give the solution as an ordered pair.

a) $24x + 35y = 258$

$17x - 28y = -134$

b) $2m - 6n = 20$

$7m - 6n = 25$

c) $6x + 4y = 18$

$9x + 6y = 27$

4. Graph each system of inequalities. Indicate the solution region with a color and/or by labeling it.

a.

$y < -\frac{1}{2}x + 3$

$36x - 24 \geq 72$

b.

$y \leq 3x - 1$

$y \leq -3x + 5$

$y \geq -6$

c.

$-2 \leq x \leq 4$

$y > \frac{1}{3}x - 3$

$8x - 24y > -24$

d.

$y > 2|x - 2| - 4$

$y \leq 2x$

$y \leq -2x + 8$

5. State the number of solutions to each system of equations without solving the system.

a)

$y = 3x - 9$

$y = -3x + 2$

b)

$y = 2x + 7$

$6x - 3y = 12$

c)

$y = -6x + 5$

$12x + 2y = 10$

d)

$y = 5$

$10x - 2y = 32$

6. The athletic director went to the sporting goods store and bought eight basketballs and seven footballs for $504. At the same time the youth director at the local YMCA bought five basketballs and three footballs for $271. Write and solve a system of equations to find the cost of a basketball and the cost of a football.

7. Two angles are supplementary. One of the angles is twelve less than twice the other angle. Write and solve a system of equations to find the measure of each angle. (Supplementary angles have a sum of $180°$)

8. You used 57 toothpicks to make squares and triangles. You made a total of 16 figures. Write and solve a system of equations to find the number of squares and triangles that were made.

9. A pan of water, at room temperature of $72°$, is placed on the stove. The burner is turned to High and it heats up $12°$ per minute. Another pan is taken off the burner and placed on the counter top. When it is set on the counter the water temperature is $212°$ and it cools down $20°$ per minute.

a) Write a system of equations to model this situation.

b) State the amount of time it will take for the two pans to reach the same temperature. Don't round.

c) What is this temperature? Don't round.

1

10. Solve each system of equations. You should be able to use Substitution and Elimination three times each. State what method you used and then give the solution as an ordered pair.

a.	b.	c.	d.	e.	f.
$a + b = 2$	$h = 4.6g - 14.5$	$12x + 7y = -115$	$5P + 6Q = 7$	$24c - 18d = 18$	$8g + 12h = -22.$
$4a - 3b = -34$	$2g - 5h = 20$	$3x - 4y = -23$	$2P - 10Q = -22$	$20c + 27d = 141$	$10g + 16h = -30$

11. Solve each system of equations. State your answers as ordered pairs.

a) $y = |x - 2| + 1$ $\qquad\qquad$ $y = 3$

b) $y = |x + 3| - 3$ $\qquad\qquad$ $y = x + 2$

12. Model situation with system of FIVE inequalities: Marsha is buying plants and soil for her garden. The soil costs $8 per bag and the plants cost $10 each. She has room for no more than five plants and can spend no more than $100. The number of bags of soil is going to be greater than the number of plants.
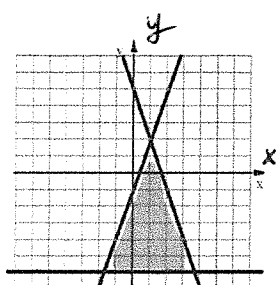
Algebra 2   Review Quiz #2   Sec 3-1, 3-2, 4-7   ⟦ANSWERS⟧   Fall 2015

1. a) $(6,-1)$ b) $(1,-2)$ $\qquad$ 2. a) $(-11,-31)$ b) $(-1,-4)$ c) Many Solutions

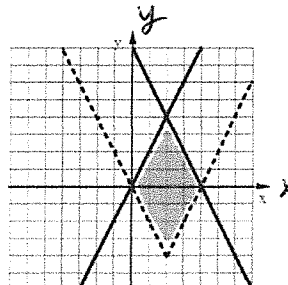3. a) $(2,6)$ b) $(1,-3)$ c) No Solution

4. a.
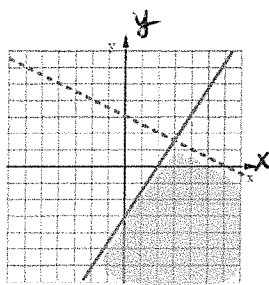
b.

c.
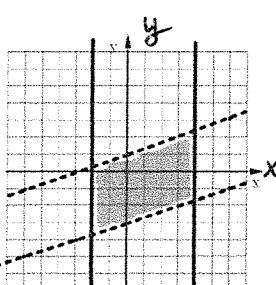
d.

5. a) One $\qquad$ b) $\qquad$ None $\qquad$ c) Many $\qquad$ d) One

6. $8B + 7F = 504$ $\qquad$ and $\qquad$ $5B + 3F = 271$
$\qquad$ Footballs are $32 each and basketballs are $35 each.

7. $x + y = 180$ $\qquad$ and $y = 2x - 12$ $\qquad$ The angles are $64°$ and $116°$

8. $S + T = 16$ $\qquad$ and $\qquad$ $4S + 3T = 57$ $\qquad$ There were nine squares and seven triangles.

9. a) EQ'S: $Y = 72 + 12m$ $\qquad$ $Y = 212 - 20m$ $\qquad$ $m = \#$ minutes $\qquad$ $Y =$Temp of water
$\qquad$ b) 4.375 seconds $\qquad\qquad$ c) $124.5°$

10. Method of solving is a personal choice. Only solutions are given.

a. $(-4,6)$ $\quad$ b. $(2.5,-3)$ $\quad$ c. $(-9,-1)$ $\quad$ d. $(-1,2)$ $\quad$ e. $(3,3)$ $\quad$ f. $(1.35,-2.75)$

11. a) $(0,3)$, $(4,3)$ $\qquad\qquad$ b) $(-4,-2)$

12. p=# of plants $\qquad$ b=# bags of soil. $\qquad$ $p \geq 0$ $\qquad$ $b \geq 0$ $\qquad$ $p \leq 5$ $\qquad$ $8b + 10s \leq 100$ $\qquad$ $b > s$