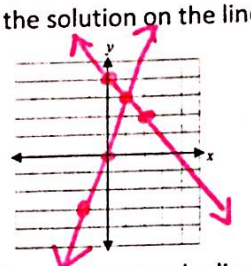
Name: _____

Algebra 2
Chapter 3 Self Assessment

1. Use the graph to solve each linear system. Write the solution on the line. Then classify the solution by circling all that apply.

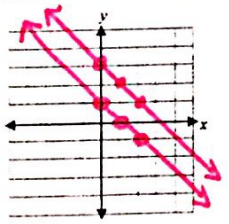
$y = 3x$
$y = -x + 4$



(1, 3)

2. Use the graph to solve each linear system. Write the solution on the line. Then classify the solution by circling all that apply.

$y = -x + 1$
$x + y = 1$
$y = -x + 3$



Solve the system using any algebraic method. Then classify the solution.

3. $x + \frac{1}{2}y = 3$
$y = -2x + 6$

$x + \frac{1}{2}(-2x+6) = 3$
$x - x + 3 = 3$
$3 = 3$ ✓

4. $y - 2x = -5$
$2y = 4x - 3$

$y = 2x - 5$
$2(2x-5) = 4x - 3$
$4x - 10 = 4x - 3$
$-10 \neq -3$

5. $5x + 9y = -6$
$3x + 4y = 2$

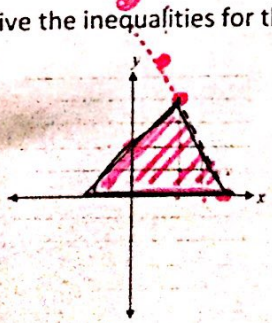
$-15x - 27y = 18$
$15x + 20y = 10$
$-7y = 28$
$y = -4$
$5x + 9(-4) = -6$
$5x - 36 = -6$
$5x = 30$
$x = 6$

6. Graph the system of inequalities on the graph provided in the answer column.

$x \geq 0$
$y \geq 0$
$2x + y \leq 4$

$y \leq -2x + 4$

7. Give the inequalities for the system of inequalities on the graph below.



$y \leq x + 2$
$y < -2x + 8$

---

1. (1, 3)
Circle all that apply:
(Consistent) Inconsistent
Dependent (Independent)

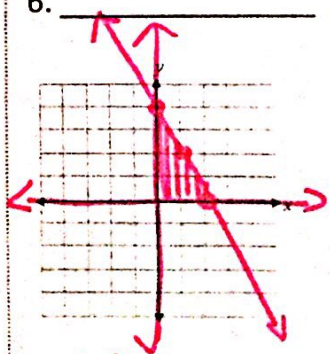
2. NO SOLUTION
Circle all that apply:
Consistent (Inconsistent)
Dependent Independent

3. Infinitely many
Circle all that apply:
(Consistent) Inconsistent
(Dependent) Independent

4. NO SOLUTION
Circle all that apply:
Consistent (Inconsistent)
Dependent Independent

5. (6, -4)
Circle all that apply:
(Consistent) Inconsistent
Dependent (Independent)

6.



7. $y \geq 0$
$y \leq x + 2$
$y < -2x + 8$

X ⇒ # of 25
y ⇒ # of 50

X = 2y

x + y = 10,000
.06x + .065y = 632.50

8. Solve the system using any algebraic method.

$-1(x + y + 2z = 5)$
$-2(x + 2y + z = 8)$
$2x + 3y - z = 1$

$-x - y - 2z = -5$
$x + 2y + z = 8$
$y - z = 3$

$-2x - 4y - 2z = -16$
$2x + 3y - z = 1$
$-y - 3z = -15$

$-y - 3z = -15$
$-4z = -12$
$z = 3$

$y - 3 = 3$
$y = 6$

$x + 6 + 6 = 5$
$x + 12 = 5$
$-x = -7$

8. (-7, 6, 3)

Solve algebraically using two variables.

9. During a recent telethon, people pledged $25 or $50. The number of people who pledged $25 was twice the number of people who pledged $50. Altogether, $18,000 was pledged. How many people pledged $25?

People who pledged - $25 - x
" $50 - y

$25x + 50y = 18000$
$x = 2y$

$25(2y) + 50y = 18000$
$50y + 50y = 18000$
$y = 180$

$x = 2(180) = 360$

9. x = 360
y = 180

10. D. Solutions A chemist needs to create 300 ml of a 38% saline solution by using 20% saline and 50% saline solutions. How much of each solution should she use?

x = 20% Sol
y = 50% Sol

	Amount	%	Total
Sol 1	x	20	20x
Sol 2	y	50	50y
Mix	300	38	11,400

$-20(x + y = 300) \Rightarrow$
$20x + 50y = 11400$
$-20x - 20y = -6000$
$30y = 5400$
$y = 180$

10. She should use 120 of the 20% solution and 180 of the 50% solution.

11. With the wind, a plane flew 2000 miles in 4 hours. Against the wind, the plane flew 800 miles in the same amount of time. Find the rate of the wind in still air and the rate of the plane.

with $4(r + w) = 2000$
$4(r - w) = 800$

$500 = r + w$
$200 = r - w$
$700 = 2r$
$r = 350$

$r + w = 500$
$350 + w = 500$
$w = 150$

11.
Rate of the plane: 350
Rate of the wind: 150 m

Find the minimum and maximum values of the objective function subject to the given constraints. In the answer column, list the minimum and maximum values and the points where they occur.

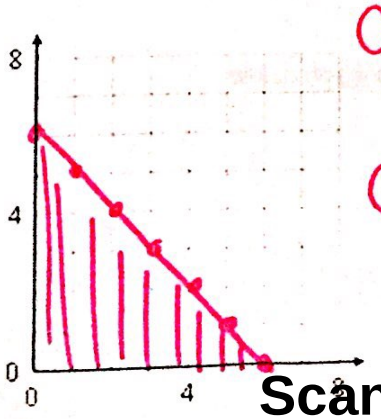
12.

Objective Function: $C = 4x + 5y$

Constraints: $x \geq 0$
$y \geq 0$
$x + y \leq 6$

$y \leq -x + 6$

(0,0)
(0,6)
(6,0)



$C = 4(0) + 5(6) = 30$

$C = 4(6) + 5(0) = 24$

12.
Min of 0
at (0, 0)
Max of 30
at (0, 6)