# Intermediate Algebra

## Chapters 3 & 4 Test, Calculator Allowed

- I. Solve for x. Write inequality answers in Interval Notation.
  - 1. 2x 4 < 2 and  $2x \ge x + 2$
  - 2.  $2x 3 \le 2$  or 3x < x + 4
  - 3.  $20 \le 2x + 4 \le 60$
  - 4.  $-3 < 4 \frac{1}{3}x < 7$
- II. Follow the directions provided.
  - 5. Determine graphically if the system is dependent, inconsistent, or has a unique solution. If a unique solution exists, solve the system.

$$2x - y = 3$$
$$-4x + 2y = -6$$

6. Determine graphically if the system is dependent, inconsistent, or has a unique solution. If a unique solution exists, solve the system.

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

- III. Solve the following systems of equations graphically.
  - 7. y = 2x + 1y = x + 2
  - 8. y = 2x 2y = -x + 4
  - 9. y = 2x 1 $y = \frac{1}{3}x + 4$
- IV. Complete the table and then use the table to solve the equations.
  - 10. 5-2x=3

X	-1	0	1	2	3
5-2x	7				-1

11. 
$$5-2x=-1+x$$

X	0	1	2	3	4
5-2x	5				-3
-1 + x	-1				3

V. Graph the following inequalities.

12. 
$$x - 2y > 5$$

13. 
$$x-2y > 4$$
  
  $2x + y \le -3$ 

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### VI. Solve the following problems.

- 14. Find the length of a rectangular lot with a perimeter of 84 meters if the length is 8 meters more than the width.
- 15. The perimeter of a rectangle is 44 cm. One side is 10 cm longer than the other side. Find the lengths of the sides.
- 16. Mardi received an inheritance of \$50,000. She invested part at 7% and deposited the remainder in tax-free bonds at 8%. Her total annual income from the investments was \$3700. Find the amount invested at 7%.

#### **Answers:**

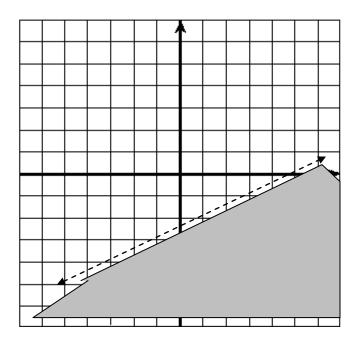
- 1. [2, 3)
- 2.  $\left(-\infty, \frac{5}{2}\right]$
- 3. [8, 28]
- 4. (-9,21)
- 5. Dependent System
- 6. *Unique System*: (2,-1)
- 7. (1,3)
- 8. (2,2)
- 9. (3,5)

10.

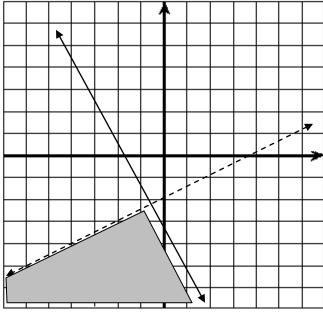
X	-1	0	1	2	3
5-2x	7	5	3	1	-1

11.

X	0	1	2	3	4
5-2x	5	3	1	-1	-3
-1 + x	-1	0	1	2	3



- 12. Dashed Line with shading below the line. The graph is above and the scale is [-7,7,1] by [-7,7,1].
- 13. First Line Dashed, Second Line Solid with shading in Bottom Left. The graph is below and the scale is [-7,7,1] by [-7,7,1].
- 14.25 m
- 15.6, 16
- 16. \$30,000



'age 2 of 2