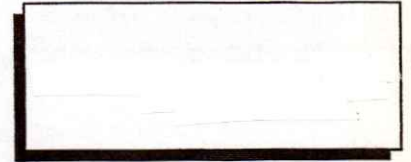


Name: \_\_\_\_\_

UNIT #2 Study Guide  
Algebra I



PART I QUESTIONS: Answer all questions in this part by writing the choice of the appropriate answer in the blank beside the problem. Please show all of your work.

1. Which of the following values of  $x$  is a solution to the equation  $4(x-3) + 8 = 68$

2. The sum of three consecutive integers is 10 more than triple the smallest integer. Write an equation which could be used to find the three integers?

3. Write a true compound inequality . . .

To be a true inequality  
\_\_\_\_\_ inequalities must be \_\_\_\_\_

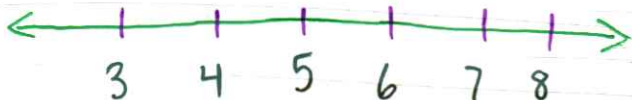
4. Two times the sum of a number,  $n$ , and 4 is at most 20. Which of the following inequalities properly models this statement? Write this statement.



5. Max correctly starts solving the linear equation  $3(x+7) = 17$  by writing  $x+7 = 5$ . Which of the following properties justifies what Max wrote?

6. Which of the following graphs shows the solution set to  $3x - 7 > 8$

Graph the solution



open circle  
OR  
Closed circle

why?

Circle: greater than OR less than

7. The value  $x=8$  is a solution to each of the following, except which?

$$x - 4 > 3x \quad \text{OR} \quad 2(x+3) = 4x - 10$$

8. Plato was saving \$10 each week in order to have enough money for a phone that costs \$150. If his father started him off with \$20 which of the following is the minimum number of whole weeks Plato will need to save?

write an equation and solve.

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PART II QUESTIONS: Answer all questions in this part. Please show all of your work.

9. The volume of a cone is given by the formula  $V = \frac{1}{3}\pi r^2 h$ . Solve this equation for the height,  $h$  in terms of  $V$  and  $r$ .

10. When a number,  $x$  is increased by 4, and then the result is multiplied by 6 the quotient is equal to 18. Write an equation and solve it to find the value of  $x$ .

11. Justify your response, is the value  $x = -4$  a solution to the inequality  $5x - 3 > 6x$

12. Solve the following equation for  $x$ . Show the manipulations that lead to your final answer.

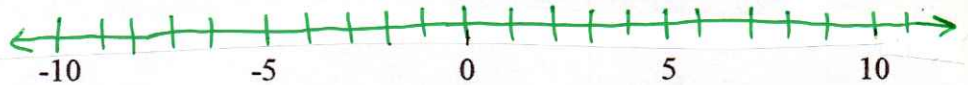
$$7(x + 2) - 3x + 4 = (x - 5) + (x - 3)$$



13. Algebraically solve the inequality

$$5x - 146 \leq -9(3x + 2)$$

14. Graph the inequality from #13 on the number line.



15. Give a property of real numbers or a property of equality to justify each step in the solution of the equation shown below.

\_\_\_\_\_ Step 1

$$4x - 8 + 2x + 1 = -37$$

\_\_\_\_\_ Step 2

$$4x + 2x - 8 + 1 = -37$$

\_\_\_\_\_ Step 3

$$6x - 7 = -37$$

\_\_\_\_\_ Step 4

$$6x = -30$$

$$x = -5$$

16. Solve the following multistep equation.  $-3x - 4 = -22$

