Name:_____Date:_____

Algebra 1 Unit 2 Test Review: Reasoning with Linear Equations and Inequalities

1. What does it mean if a coordinate pair (x,y) is a solution to a system of linear equations or inequalities?

2. Once a system of equations is graphed, how do you know what the solution is?

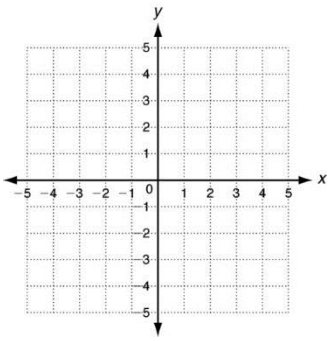
3. What special solutions are possible for a system of equations or inequalities?

4. Solve for w. $z = x + \left(\frac{1}{3}\right) yw$

5. Solve for w. $v = \frac{w-x}{y}$

6. Solve for w. $v = \frac{w}{xy}$

7. Graph the inequality $y > 2x - 3$



8. Name two solutions to the inequality graphed in number 7.

9. Write an inequality to represent each of the following scenarios:
   a. There are no more than 12 students.
   b. There is a minimum of 12 students.
   c. There are at least 12 students.
   d. There are at most 12 students.
   e. There is a maximum of 12 students.

10. Solve 5(2x – 3) < 20

11. Identify the property of equality used to justify each step taken when solving the equation 2x – 6 = 18

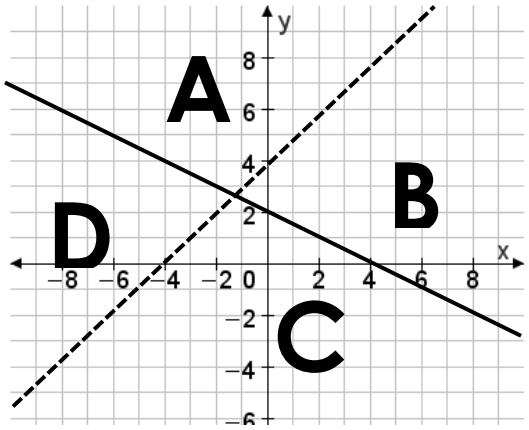
    a. Step 1:
    b. Step 2:
    c. Step 3:
    d. Step 4

2x – 6 = 24
Step 1: 2x – 6 + 6 = 24 + 6
Step 2: 2x = 30
Step 3: $\frac{2x}{2} = \frac{30}{2}$
Step 4: x = 15

12. The Sprayberry Football concession stand sold hamburgers for $1.50 and sodas for $1.00 at the last football game. If a total of 664 items were sold to give sales of $770, how many of each item was sold?

13. Which region should be shaded to show the solution set of the system of inequalities below?

$$2y < 2x + 8$$
$$y \geq -\frac{1}{2}x + 2$$



A. Region A
B. Region B
C. Region C
D. Region D

14. Sketch a graph and plot each of the following points:

A. (-1,4)

B. (1,4)

C. (-1,-4)

D. (1,-4)

15. G(t) represents the number of gray hairs on Mrs. Williams's head in years since beginning teaching in 2010 and can be modeled by the equation G(*t*) = 25t. Which of the following correctly models the number of gray hairs on Ms. Williams's head in 2015?

A. G(2015)=50,375

B. G(2010)=50,250

C. G(5)=125

D. G(Mrs. Williams has no gray hair)

16. Ashley orders 3 shirts and 4 pairs of pants from Old Navy and spends $115.50. Brittany orders 2 shirts and 3 pairs of pants from Old Navy and spends $83.50. How much does one shirt cost?

17. Jen is saving money to go on a huge vacation. She currently has $2000 in savings and adds $50 a month to her savings account. Her savings can be modeled by the equation f(x)= 2000+50x.
    a. What does the slope represent?
    b. What does the y-intercept represent?
    c. What does the independent (x-variable) represent?
    d. What does the dependent (f(x) variable) represent?

18. How many solutions would each of the following the following equations and inequalities have?
    A. $X + 2 = 4 + x - 2$
    B. $X + 2 = x + 4$
    C. $X + 2 > x + 4$
    D. $X + 2 < x + 4$

19. Rearrange the following equation into slope intercept form $3x + 9y = x - 18$

Solve the following:

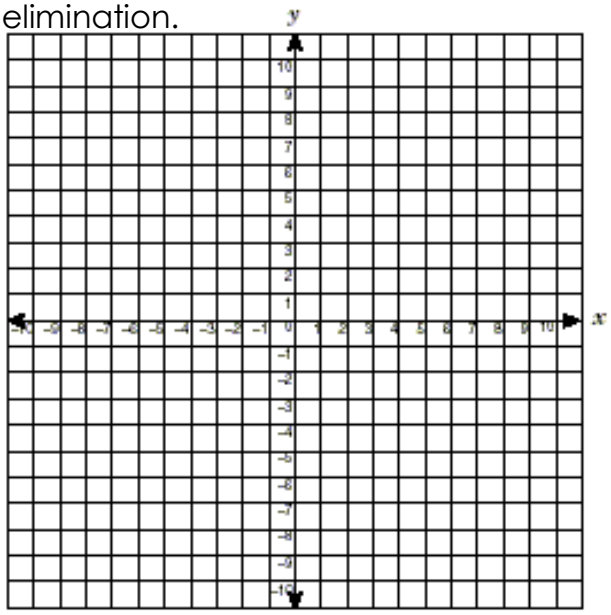
20. Solve for x: $5(2x-1) = 20$

19. Solve for x: $7(x - 2) + 3 = -2(x + 3) - 7$

21. Solve the following system by graphing and elimination.

$2y - 4x = 10$

$y - 5 = 2x$



22. If $d = \frac{1}{2}at^2$ where a is measured in meters per second squared and t is measured in seconds,

a. What units is d measured in?

b. Solve for a.

23. Brittany received a $1500 tax return. Since then, she has saved an additional $200 per month. She has been saving for six months. She hopes to save enough to pay for her children's daycare for two months, so she needs $3000. Does she currently have enough money in savings?

24. a. Solve the inequality. Graph the solution. $-2x + 3 < 13$