Name: _____ Date: _____

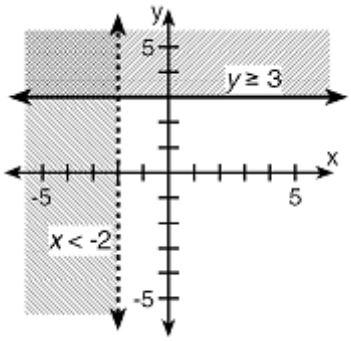
CC Algebra

Midterm Review #2

1. It costs $75 per hour plus a $65 service fee to have a home theater system set up for you. Let *t* represent the number of hours. Which expression represents the total cost?

a. $75t + 65$ c. $140t$
b. $65t + 75$ d. $75t$

2. The accompanying diagram represents the graphs of the inequalities y ≥ 3 and x < -2.



Which of the ordered pairs names a point in the solution set of this system of inequalities?

a. (-3, 5) c. (3, -5)
b. (3, 5) d. (-3, -5)

3. What is an algebraic expression for "4 more than the product of 3 and a number"?

a. $(4 + 3)x$ c. $4 - 3x$
b. $4 + 3x$ d. $3x - 4$

4. What is $9 + 2y^2 - 11y$ increased by $13y^2 - 7 + 2y$?

a. $15y^2 - 9y - 2$ c. $15y^2 + 9y + 2$
b. $15y^4 - 9y^2 + 2$ d. $15y^2 - 9y + 2$

5. What property is illustrated by the equation (8 + 2) + 7 = (2 + 8) + 7?

a. Commutative Property of Addition
b. Associative Property of Addition
c. Distributive Property
d. Identity Property of Addition

6. The data in the table below are graphed, and the slope is examined. The rate of change represented in this table can be described as

x	*y*
0.5	9.0
1	8.75
1.5	8.5
2	8.25
2.5	8.0

a. negative c. positive
b. zero d. undefined

7. Harry makes coffee tables as his hobby. It costs him $85 to make one table. His fixed costs are $520. If he can sell his tables for $125, how many must he sell to break even?

a. 13 c. 42
b. 15 d. 26

8. Solve the given equation:

$$5x - 2x + 15 = 2x + 14$$

a. 1 c. −29
b. 29 d. −1

9. The length of a rectangular window is 3 times its width. Which equation will determine the dimensions if the area of the window is 154 square inches?

a. $3w^2 + 154 = 0$
b. $12w^2 = 154$
c. $w^2 + 3w = 154$
d. $3w^2 = 154$

10. What ordered pair is the solution of this system of equations?

$$4x - 2y = 10$$
$$x + y = 1$$

a. (2, -5)
b. (-4, 8)
c. (-4, -8)
d. (2, -1)

11. What is the solution to the inequality

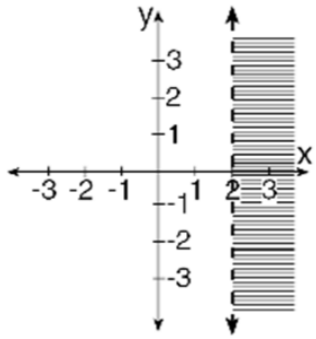
$$\frac{7-2x}{5} < 9?$$

a. $x > 26$
b. $x < 52$
c. $x > -19$
d. $\emptyset$

12. The perimeter *P* of a rectangle with length *l* and width *w* can be represented by the equation $P = 2l + 2w$. Which expression represents the width in relation to *P* and *l*?

a. $w = P - 2l$
b. $w = P - l$
c. $w = \frac{1}{2}P - 2l$
d. $w = \frac{P - 2l}{2}$

13. What inequality is illustrated in the accompanying graph?

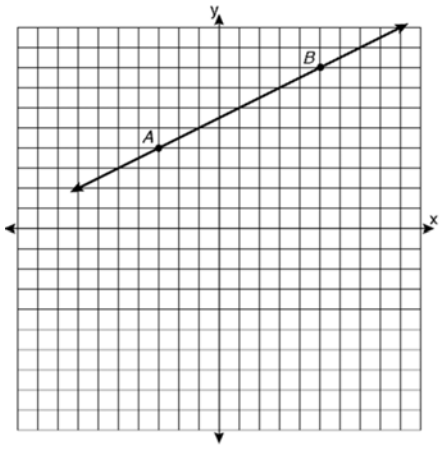


a. $y < 2$
b. $y > 2$
c. $x < 2$
d. $x > 2$

14. Which one the following ordered pairs is in the solution of $y \geq 2x + 3$?

a. (3, 2)
b. (1, 4)
c. (0, 0)
d. (0, 5)

15. In the diagram below, what is the slope of the line passing through points A and B?



a. $-\frac{1}{2}$
b. 2
c. -2
d. $\frac{1}{2}$

16. Solve $9w = 4x$ for w.

a. $w = 4x - 9$

b. $w = \frac{9}{4}x$

c. $w = \frac{4}{9}x$

d. $w = \frac{2}{3}x$

17. What are the solutions of $3d - 4 < -10$ or $2d + 7 \geq 9$?

a. $d > -2$
b. $d \leq 1$
c. $-2 < d \leq 1$
d. $d < -2$ or $d \geq 1$

18. At Raging River Sports, polyester-fill sleeping bags sell for \$79. Down-filled sleeping bags sell for \$149. In one-week the store sold 14 sleeping bags for \$1456. Find the number of each type sold.

19. Find the product of $(3x + 2)$ and $(9x^2 - 6x + 4)$. Express your answer in simplest form.

20. The formula $F = \frac{5}{9}C + 32$ changes a temperature reading from Celsius scale C to Fahrenheit scale F. What is the temperature measured in degrees Fahrenheit when the temperature is $-5^\circ C$?

21. Simplify the expression. Justify each missing step with a property of real numbers.

$5 + (3x + 2) = 5 + (2 + 3x)$ _____

$= (5 + 2) + 3x$ _____

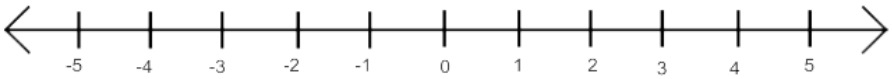
$= 7 + 3x$ Combine Like Terms

22. Solve and check: $\frac{2}{3}a - \frac{1}{6}a = 15$

23. Solve this equation for x in terms of y: $3x + 2y = 4$

24. Solve and graph the solution set for the given inequality:

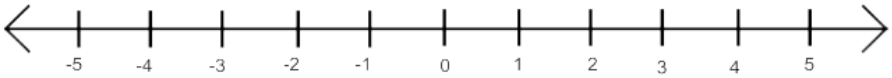
$25x + (3 - 17x) > 3x - (x + 3)$

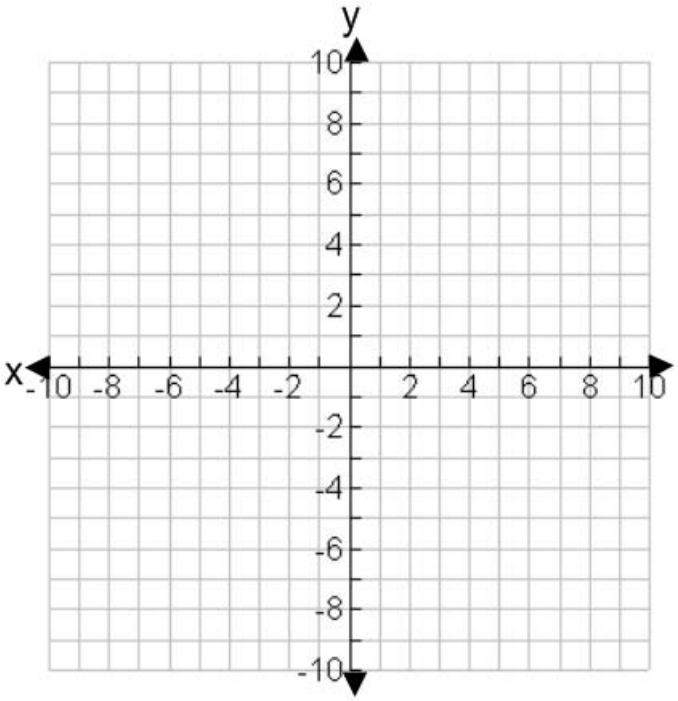


25. Find three consecutive positive odd integers such that twice the sum of the second and the third is two less than six times the first.

26. The length of a rectangle is 4 centimeters longer than the width. The perimeter of the rectangle is 72 centimeters. Find the length and width of the rectangle.

27. Solve the compound inequality $-4 \leq 3p - 7 < 5$. Graph your solution on the number line.



28. On the same set of coordinate axes, graph the following system of inequalities. Remember to label your solution and check.

$x - y < 1$
$y \geq -2x + 4$