

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

Algebra 2: Midterm Rev Part 1 Multiple Choice (2pts. Each)

1. Evaluate  $-4rs + (-rs) - 2r^2$  when  $r = -2$  and  $s = 5$ .

- a. 58            b. 28            c. 42            d. -15

2. Solve the equation:  $6(5 - x) = 4 + (-2 + x)$ .

- a.  $x = 5$             b.  $x = 4$             c.  $x = \text{undefinable}$             d.  $x = -2$

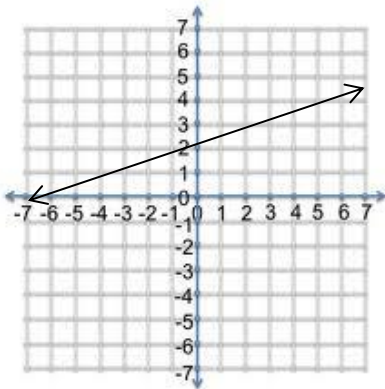
3. Solve the equation:  $-\frac{1}{3}x + 3 = 2(2x - 3)$ .

- a. c.  $\frac{18}{13}$             b. c.  $\frac{13}{27}$             c.  $\frac{27}{13}$             d. -2

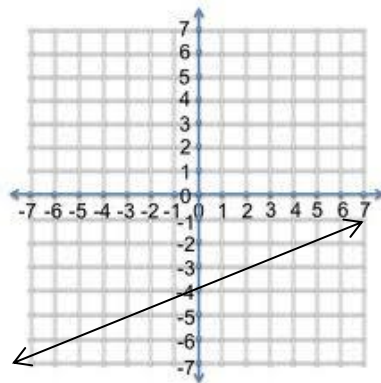
4. Find the slope of the line passing through the points  $(1, -5)$  and  $(2, 5)$ .

- a.  $m = \frac{1}{10}$             b.  $m = -10$             c.  $m = 0$             d.  $m = 10$

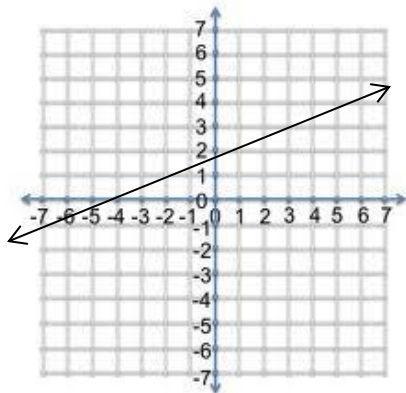
5. Graph the line  $-2x + 5y = -20$ .



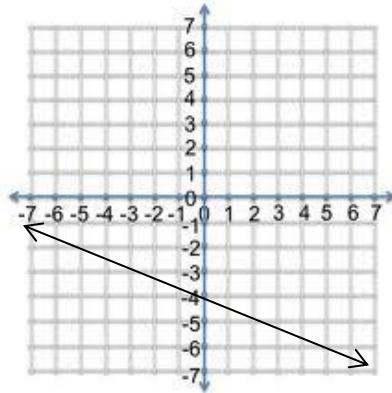
a.



b.



c.



d.

6. Write the equation of the line that passes through the point (1,5) and is perpendicular to  $y = -\frac{1}{4}x - 6$ .

- a.  $y = -4x + 1$       b.  $y = 4x + 1$     c.  $y = \frac{1}{4}x + \frac{19}{4}$       d.  $y = 4x - 1$

7. Write the equation of the line that has a slope of -5 and passes through the point (-1,-2).

- a.  $y = -5x + 5$       b.  $y = -5x - 7$       c.  $y = -3x + 10$       d.  $y = -5x + 7$

8. What is the equation of the line that contains (7,5) and (-1,1)?

- a.  $y = \frac{1}{2}x + \frac{3}{2}$       b.  $y = -2x + 9$       c.  $y = -\frac{1}{2}x + \frac{3}{2}$       d.  $y = \frac{1}{2}x$

9. If  $f(x) = \begin{cases} 4x + 1, & \text{if } x < -1 \\ 2x - 3, & \text{if } x \geq -1 \end{cases}$  what is  $f(5)$ ?

- a. 21      b. 7      c. 21 and 7      d. neither

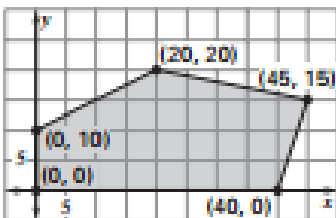
10. Solve the linear system:  $\begin{cases} -2x - 6y = 4 \\ 4x + 3y = 1 \end{cases}$

- a. (-1,1)      b. (1,-1)      c. no solution      d. infinite solutions

11. Solve the linear system:  $\begin{cases} 3x + 3y = 0 \\ 2y = -2x \end{cases}$

- a. (0,0)      b. (3,-3)      c. no solution      d. infinite solutions

12. Given the feasible region shown, which is the maximum value of the objective function  $C = 5x + 2y$ ?



- a. 20      b. 200      c. 140      d. 255

13. Solve the system of equations: 
$$\begin{cases} 3x + 2y + 4z = 11 \\ 2x - y + 3z = 4 \\ 5x - 3y + 5z = -1 \end{cases}$$

- A. (-3,2,4)                      b. (4,2,-3)                      c. no solution                      d. infinite solutions

14. Perform the matrix operation 
$$\begin{bmatrix} 6 & 1 & -2 \\ 5 & 0 & 8 \\ 3 & -1 & 5 \end{bmatrix} + \begin{bmatrix} 5 & 0 & 9 \\ -2 & 4 & 10 \\ 4 & -2 & 3 \end{bmatrix}.$$

- a.  $\begin{bmatrix} 11 & 1 & 7 \\ 7 & 4 & 18 \\ 7 & 3 & 2 \end{bmatrix}$                       b.  $\begin{bmatrix} 11 & 1 & 7 \\ -3 & 4 & 4 \\ 7 & 3 & -2 \end{bmatrix}$                       c.  $\begin{bmatrix} 11 & 1 & 7 \\ 3 & 4 & 18 \\ 7 & -3 & 8 \end{bmatrix}$                       d.  $\begin{bmatrix} 11 & 0 & 7 \\ 3 & 0 & 18 \\ 7 & -3 & 8 \end{bmatrix}$

15. Find the determinant of the matrix  $\begin{bmatrix} -6 & 7 \\ -5 & 5 \end{bmatrix}.$

- a. -3                      b. -65                      c. 5                      d. 24

16. Solve for  $c$ :  $\begin{bmatrix} 7 & a+1 \\ 10b & c-2 \end{bmatrix} = \begin{bmatrix} 7 & -2 \\ 20 & -6 \end{bmatrix}.$

- a. -3                      b. 2                      c. -4                      d.  $\frac{1}{3}$

17. Find the vertex of the parabola  $y = 4x^2 + 8x + 7$ . Does the parabola open up or down?

- a. (1,-3), up                      b. (0,-7), down                      c. (-1, 3), up                      d. (-7,0), up

18. Factor the expression  $20x^2 - 44x - 15$ .

- a. (2x+5)(10x-3)                      b. (4x+5)(5x-3)                      c. (4x-5)(5x+3)                      d. (10x+3)(2x-5)

19. Solve the equation  $x^2 + 5x - 24 = 0$ .

- a. x=6, x=-4                      b. x=-6, x=4                      c. x=3, x=-8                      d. x=8, x=-3

20. Mutiply  $(-5 - 2i)(3 + 7i)$ .

- a.  $-15 - 4i^2$                       b.  $-29 - 41i$                       c.  $-1 + 41i$                       d.  $-1 - 41i$