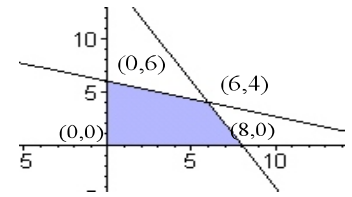


1. The maximum and the minimum values of the function $C = 20 + 3x - 2y$ over the shaded region (below) are, respectively:

- a) 20 & 30 b) 30 & 46
c) 8 & 20 *d) 8 & 44



2. In finding the half plane solution of the inequality $3x - 2y > 12$, which of the following points can not be used as test point?

- a) (3, 6) *b) (4, 0) c) (1, -3) d) (2, -4)

3. Point(4,5) is in the solution set of

- *a) $5x - 3y \geq 5$ b) $x + y \leq 5$ c) $3x - 2y > 5$ d) $2x > 3y$

4. Find the y value of the solution to:
$$\begin{cases} x - 2y = 7 \\ 2x + 2y = -1 \end{cases}$$

- a) $y = \frac{9}{2}$ *b) $y = -\frac{5}{2}$ c) $y = \frac{11}{5}$ d) $y = 3$

5. Find the solution of the system with augmented matrix
$$\left[\begin{array}{cccc} 1 & 0 & 2 & 1 \\ 0 & 1 & -2 & 0 \\ 0 & 0 & 0 & 0 \end{array} \right]$$

- a) $(2z - 1, 4 - 3z, z)$ b) $(-1, -2, 0)$ *c) $(1 - 2z, 2z, z)$ d) no solution

6. Find the solution of the system with augmented matrix
$$\left[\begin{array}{cccc} 1 & -1 & 0 & 1 \\ 0 & 1 & 1 & 2 \\ 0 & 0 & 0 & -5 \end{array} \right]$$

- a) $(1 - 2z, 2z, z)$ b) $(-1, -2, 0)$ c) $(3 - z, 2 - z, z)$ *d) no solution

7. Find the x value of the solution:
$$\begin{cases} x + 3y - 2z = 5 \\ y - 2z = 1 \\ z = -1 \end{cases}$$

- a) $x = 2$ b) $x = -6$ *c) $x = 6$ d) $x = -2$

8. The system of equations
$$\begin{cases} 4x + 2y = 6 \\ 3x + 3y = 6 \end{cases}$$
 has

- *a) one solution b) two solutions c) infinitely many solutions d) no solution

9. Which of the following represents a consistent and dependent system of linear equations?

- a) $\begin{cases} 3x + 2y = 3 \\ x - 2y = -7 \end{cases}$ b) $\begin{cases} 3x + 2y = 3 \\ 6x - 6y = 6 \end{cases}$ c) $\begin{cases} 3x + 2y = 3 \\ 3x - 2y = 3 \end{cases}$ *d) $\begin{cases} 3x + 2y = 3 \\ -6x - 4y = -6 \end{cases}$

For problems 10-13 use the following matrices:

$$A = \begin{bmatrix} 2 & -3 \\ 1 & 2 \end{bmatrix} \quad B = \begin{bmatrix} 2 & 1 & -3 \\ 1 & 0 & 2 \end{bmatrix} \quad D = \begin{bmatrix} 1 & -1 \\ 0 & -2 \end{bmatrix}$$

10. Matrix $3A + B$

a) $\begin{bmatrix} 5 & -10 \\ 3 & 4 \end{bmatrix}$ b) $\begin{bmatrix} 5 & -8 \\ 3 & 8 \end{bmatrix}$ c) $\begin{bmatrix} 7 & -8 \\ 3 & 8 \end{bmatrix}$ *d) not possible

11. Matrix $A - D =$

a) $\begin{bmatrix} -1 & 2 \\ 1 & -4 \end{bmatrix}$ b) $\begin{bmatrix} 1 & 2 \\ 1 & 4 \end{bmatrix}$ *c) $\begin{bmatrix} 1 & -2 \\ 1 & 4 \end{bmatrix}$ d) not possible

12. Matrix $-2B =$

*a) $\begin{bmatrix} -4 & -2 & 6 \\ -2 & 0 & -4 \end{bmatrix}$ b) $\begin{bmatrix} 1 & 2 & -6 \\ 2 & 1 & 0 \end{bmatrix}$ c) $\begin{bmatrix} 2 & 0 & 6 \\ -2 & 0 & -4 \end{bmatrix}$ d) not possible

13. Dimension of the matrix $B =$

*a) 2×3 b) 3×2 c) 3×1 d) 2×2

14. In finding the half plane solution of the inequality $3x - 2y > 12$, which of the following points can be used as test point?

a) (0, -6) b) (4, 0) c) (2, -3) *d) (3, 4)

15. Use calculator to solve the system:
$$\begin{cases} 2x + z = 5 \\ x - 3z = -6 \\ 4x + 2y - z = -9 \end{cases}$$

a) (-3, 1, -2) b) (-3, 2, 1) c) (2, -3, 1) *d) None of these

Use calculator to solve the system:
$$\begin{cases} 2x + z = -5 \\ x - 3z = -6 \\ 4x + 2y - z = -9 \end{cases}$$

a) (-3, 1, -2) *b) (-3, 2, 1) c) (2, -3, 1) d) None of these

16. Given the system
$$\begin{cases} x + y \geq 2 \\ x - y \leq 1 \\ x \leq 0 \quad y \geq 0 \end{cases}$$
 which of the following is NOT a corner point?

*a) (1, 0) b) (0, 1) c) (0, 2) d) (0, 0)

17. The system of equations $\begin{cases} 4x + 2y = 6 \\ 8x + 4y = 6 \end{cases}$ has

*a) no solution

b) infinitely many solutions

c) two solutions

d) one solution