

Matrix-Day 4 HW

Name: _____

Date: _____

1. $x - y - 3z = -2$
 $2x + 3z = 5$
 $3x + 2y + z = 4$

What is the augmented matrix for the system of equations?

A. $\begin{bmatrix} 1 & -1 & -3 \\ 2 & 0 & 3 \\ 3 & 2 & 1 \end{bmatrix}$

B. $\begin{bmatrix} 1 & -1 & -3 & -2 \\ 0 & 1 & 2 & 2 \\ 0 & 0 & 1 & 1 \end{bmatrix}$

C. $\begin{bmatrix} 1 & -1 & -3 & -2 \\ 0 & 1 & 2 & 2 \\ 0 & 0 & 1 & -4 \end{bmatrix}$

D. $\begin{bmatrix} 1 & -1 & -3 & -2 \\ 2 & 0 & 3 & 5 \\ 3 & 2 & 1 & 4 \end{bmatrix}$

2. $x + z = -1$
 $2x - 2y + z = -2$
 $-3x + 2y - 3z = 5$

What is the coefficient matrix for the system of equations?

A. $\begin{bmatrix} 1 & 0 & 1 & -1 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & -2 \end{bmatrix}$

B. $\begin{bmatrix} 1 & 1 & 1 & -1 \\ 0 & 1 & 1 & -2 \\ 0 & 0 & 1 & 1 \end{bmatrix}$

C. $\begin{bmatrix} 1 & 0 & 1 \\ 2 & -2 & 1 \\ -3 & 2 & -3 \end{bmatrix}$

D. $\begin{bmatrix} 1 & 0 & 1 & -1 \\ 2 & -2 & 1 & -2 \\ -3 & 2 & -3 & 5 \end{bmatrix}$

3. $x - 2y + 2z = -1$
 $2x - 3y - 2z = 3$
 $x - y + z = -1$

What is the coefficient matrix for the system of equations?

A. $\begin{bmatrix} 1 & -2 & 2 & -1 \\ 0 & 1 & -6 & 5 \\ 0 & 0 & 1 & -1 \end{bmatrix}$

B. $\begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & -1 \\ 0 & 0 & 1 & 1 \end{bmatrix}$

C. $\begin{bmatrix} 1 & 0 & 0 & -2 \\ 0 & 1 & 0 & -1 \\ 0 & 0 & 1 & 1 \end{bmatrix}$

D. $\begin{bmatrix} 1 & -2 & 2 \\ 2 & -3 & -2 \\ 1 & -1 & 1 \end{bmatrix}$

4. $x + y + z = 4$
 $2x + 2y - z = 2$
 $x - 2y - 2z = 7$

What is the augmented matrix for the system of equations?

A. $\begin{bmatrix} 1 & 1 & 1 & 4 \\ 0 & 1 & 1 & -2 \\ 0 & 0 & 1 & 1 \end{bmatrix}$ B. $\begin{bmatrix} 1 & 1 & 1 & 4 \\ 0 & 1 & 1 & -1 \\ 0 & 0 & 1 & -1 \end{bmatrix}$

C. $\begin{bmatrix} 1 & 1 & 1 & 4 \\ 2 & 2 & -1 & 2 \\ 1 & -2 & -2 & 7 \end{bmatrix}$ D. $\begin{bmatrix} 1 & 1 & 1 & 4 \\ 0 & 1 & 1 & -1 \\ 0 & 0 & 1 & 2 \end{bmatrix}$

5. Solve for x and y .

$$\begin{bmatrix} 2x \\ -12 \end{bmatrix} = \begin{bmatrix} -6 \\ -3y \end{bmatrix}$$

- A. $x = -24, y = 18$ B. $x = -12, y = 36$
C. $x = 3, y = -4$ D. $x = -3, y = 4$

6. Solve for x and y .

$$\begin{bmatrix} 5x - 2 \\ 18 \end{bmatrix} = \begin{bmatrix} 8 \\ 6 - 2y \end{bmatrix}$$

- A. $x = -2, y = -4$ B. $x = 4, y = -1$
C. $x = 2, y = -6$ D. $x = -4, y = 1$

7. Use matrices to solve the following system of equations and find the value of z .

$$\begin{aligned} x - 2y &= -18 \\ 4x - 3y - 2z &= -30 \\ 8y + 6z &= 150 \end{aligned}$$

- A. 9 B. 12 C. 6 D. -12

8. Which of the statements are true for the following system of equations?

$$\begin{aligned} 5x - 3y &= 6 \\ 3x - 2y &= 5 \end{aligned}$$

I. $\begin{bmatrix} 5 & -3 \\ 3 & -2 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 6 \\ 5 \end{bmatrix}$

II. $\begin{bmatrix} 5 & -3 \\ 3 & -2 \end{bmatrix}^{-1} \begin{bmatrix} 6 \\ 5 \end{bmatrix} = \begin{bmatrix} x \\ y \end{bmatrix}$

III. $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -3 \\ -7 \end{bmatrix}$

- A. II B. III
C. I and II D. I, II, and III

9. Solve for a, b, c and d .

$$\begin{bmatrix} a + 2 & 9 \\ -3 & 5 - b \end{bmatrix} = \begin{bmatrix} 4 & 3 - c \\ d + 1 & 1 \end{bmatrix}$$

- A. $a = 7, b = 8, c = -1, d = 0$
B. $a = 2, b = 4, c = -6, d = -4$
C. $a = 2, b = \frac{1}{5}, c = -3, d = -3$
D. $a = -11, b = 2, c = 7, d = -2$

10. For which of the given systems is $(-1, 0)$ a solution?

- A. $\begin{aligned} 2x + 3y &= -2 \\ -3x + y &= -3 \end{aligned}$ B. $\begin{aligned} 5x - 3y &= 5 \\ x - y &= -1 \end{aligned}$
C. $\begin{aligned} -5x + 5y &= 5 \\ x - y &= -1 \end{aligned}$ D. $\begin{aligned} 11x - 4y &= -11 \\ 22x + y &= 22 \end{aligned}$

1.
Answer: D
Objective: A.REI.8
2.
Answer: C
Objective: A.REI.8
3.
Answer: D
Objective: A.REI.8
4.
Answer: C
Objective: A.REI.8
5.
Answer: D
Objective: A.REI.9
6.
Answer: C
Objective: A.REI.9
7.
Answer: A
Objective: A.REI.9
8.
Answer: D
Objective: A.REI.9
9.
Answer: B
Objective: A.REI.9
10.
Answer: C
Objective: A.REI.6