1. Given

$$\begin{bmatrix} 0 & -2 & -2 & 1 \\ 0 & 0 & -1 & 1 \\ 1 & -7 & 1 & -1 \end{bmatrix}$$

Determine the associated linear system of equations , also determine the echelon row reduce matrix, and finally, determine the associated system of equations after row reduction.

A

$$\begin{bmatrix} 1 & 0 & 5 & 14 \\ 0 & 1 & 4 & 13 \\ 0 & 0 & 7 & 20 \end{bmatrix}$$

B

$$\begin{aligned} x + y &= 4 \\ 2\,y &= 1 \\ z &= -1 \end{aligned}$$

:

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

:

C

$$\begin{aligned} -9\,x - y &= 1 \\ 2\,x + y &= 1 \\ -x + y - z &= -1 \end{aligned}$$

D

$$\begin{aligned} -y - 2\,z &= -1 \\ x + y + z &= -2 \\ 3\,x - z &= -1 \end{aligned}$$

E

$$\begin{aligned} -2\,y - 2\,z &= 1 \\ -z &= 1 \\ x - 7\,y + z &= -1 \end{aligned}$$

F

$$\begin{aligned} -y + 4\,z &= 1 \\ -y + 6\,z &= 0 \\ -2\,x + 4\,y + z &= -2 \end{aligned}$$

G none of these

---

2. Given

$$\begin{bmatrix} 6 & -11 & 1 & -1 \\ 0 & 1 & 1 & 1 \\ -3 & 3 & -2 & -2 \end{bmatrix}$$

Determine the associated linear system of equations.

A

$$\begin{aligned} -x - 2\,y + z &= 5 \\ -5\,x - 3\,y &= 0 \\ -5\,y + 3\,z &= -1 \end{aligned}$$

B

$$\begin{aligned} -x - y + z &= 40 \\ -2x + z &= 0 \\ -5x + z &= -66 \end{aligned}$$

C

$$\begin{aligned} -x + y - z &= 1 \\ 2x - y - z &= -1 \\ -x - 2y + z &= -2 \end{aligned}$$

D

$$\begin{aligned} 6x - 11y + z &= -1 \\ y + z &= 1 \\ -3x + 3y - 2z &= -2 \end{aligned}$$

E none of these

---

3. Suppose $A = \begin{bmatrix} -1 & 27 & 0 \\ -130 & -3 & -19 \\ -1 & 1 & -21 \end{bmatrix}$

compute $\det(A)$

A -14 B -10 C 0 D -73279
E -105 F none of these

---

4. Select expressions equivalent to the system of equations:

$$\begin{aligned} x - 3y &= -1 \\ x + y &= -1 \end{aligned}$$

A $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -1 \\ 0 \end{bmatrix}$

B $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ 3 \end{bmatrix}$

C $\begin{bmatrix} 1 & -3 \\ 1 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -1 \\ -1 \end{bmatrix}$

D $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} \frac{1}{4} & \frac{3}{4} \\ -\frac{1}{4} & \frac{1}{4} \end{bmatrix} \begin{bmatrix} -1 \\ -1 \end{bmatrix}$

E $\begin{bmatrix} 3 & -1 \\ 1 & 0 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$

F $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 3 & -1 \\ 1 & 0 \end{bmatrix}^{-1} \begin{bmatrix} 0 \\ 1 \end{bmatrix}$

G $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 0 & 1 \\ -1 & 3 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix}$

H $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 & -3 \\ 1 & 1 \end{bmatrix}^{-1} \begin{bmatrix} -1 \\ -1 \end{bmatrix}$

I none of these

---

5. Select expressions equivalent to the system of equations:

$$\begin{aligned} -3x - y + 2z &= 1 \\ 5y - z &= -110 \\ -8x + y + 4z &= 0 \end{aligned}$$

A $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -71 \\ -48 \\ -130 \end{bmatrix}$

B $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 & -3 & -2 \\ -1 & 0 & 7 \\ -1 & 1 & 2 \end{bmatrix}^{-1} \begin{bmatrix} 8 \\ 1 \\ 2 \end{bmatrix}$

C $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -\frac{7}{10} & \frac{2}{5} & -\frac{21}{10} \\ -\frac{1}{2} & 0 & -\frac{1}{2} \\ -\frac{1}{10} & \frac{1}{5} & -\frac{3}{10} \end{bmatrix} \begin{bmatrix} 8 \\ 1 \\ 2 \end{bmatrix}$

D $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -\frac{47}{5} \\ -5 \\ -\frac{6}{5} \end{bmatrix}$

E $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -3 & -1 & 2 \\ 0 & 5 & -1 \\ -8 & 1 & 4 \end{bmatrix}^{-1} \begin{bmatrix} 1 \\ -110 \\ 0 \end{bmatrix}$

F $\begin{bmatrix} -3 & -1 & 2 \\ 0 & 5 & -1 \\ -8 & 1 & 4 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ -110 \\ 0 \end{bmatrix}$

G $\begin{bmatrix} 1 & -3 & -2 \\ -1 & 0 & 7 \\ -1 & 1 & 2 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 8 \\ 1 \\ 2 \end{bmatrix}$

H $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} \frac{7}{3} & \frac{2}{3} & -1 \\ \frac{8}{9} & \frac{4}{9} & -\frac{1}{3} \\ \frac{40}{9} & \frac{11}{9} & -\frac{5}{3} \end{bmatrix} \begin{bmatrix} 1 \\ -110 \\ 0 \end{bmatrix}$

I none of these

---

6. Suppose

$$\begin{vmatrix} x & y & z \\ a & b & c \\ 1 & 1 & -3 \end{vmatrix} = 3$$

Use the properties of determinants to find:

$$\begin{vmatrix} x & y & z \\ 4 & 4 & -12 \\ a & b & c \end{vmatrix}$$

A not enough information given B -63 C -12
D 130 E 160 F -144 G none of these

---

7. Suppose

$$\begin{aligned} x &= -1 \\ -7\,x - 3\,y + 2\,z &= 0 \\ -x - y &= -12 \end{aligned}$$

select the implication/s

A

$$x = \frac{\begin{vmatrix} -1 & 0 & 0 \\ 0 & -3 & 2 \\ -12 & -1 & 0 \end{vmatrix}}{\begin{vmatrix} 1 & 0 & 0 \\ -7 & -3 & 2 \\ -1 & -1 & 0 \end{vmatrix}}$$

B

$$z = \frac{\begin{vmatrix} 1 & -1 & 0 \\ -7 & 0 & 2 \\ -1 & -12 & 0 \end{vmatrix}}{\begin{vmatrix} 1 & 0 & 0 \\ -7 & -3 & 2 \\ -1 & -1 & 0 \end{vmatrix}}$$

C

$$y = \frac{\begin{vmatrix} -1 & 0 & 0 \\ 0 & -3 & 2 \\ -12 & -1 & 0 \end{vmatrix}}{\begin{vmatrix} 1 & 0 & 0 \\ -7 & -3 & 2 \\ -1 & -1 & 0 \end{vmatrix}}$$

D

$$z = \frac{\begin{vmatrix} 1 & 0 & -1 \\ -7 & -3 & 0 \\ -1 & -1 & -12 \end{vmatrix}}{\begin{vmatrix} 1 & 0 & 0 \\ -7 & -3 & 2 \\ -1 & -1 & 0 \end{vmatrix}}$$

E

$$y = \frac{\begin{vmatrix} 1 & -1 & 0 \\ -7 & 0 & 2 \\ -1 & -12 & 0 \end{vmatrix}}{\begin{vmatrix} 1 & 0 & 0 \\ -7 & -3 & 2 \\ -1 & -1 & 0 \end{vmatrix}}$$

F

$$x = \frac{\begin{vmatrix} 1 & 0 & -1 \\ -7 & -3 & 0 \\ -1 & -1 & -12 \end{vmatrix}}{\begin{vmatrix} 1 & 0 & 0 \\ -7 & -3 & 2 \\ -1 & -1 & 0 \end{vmatrix}}$$

G none of these

---

8. Find real numbers a, b, and c such that the graph of the function $f(x) = ax^2 + bx + c$ contains the points $(-4, 2)$, $(-5, 8)$, and $(-2, -4)$, then use this to compute $f(1)$

A $f(1) = 3$ B $f(1) = 2$ C $f(1) = -2$
D $f(1) = -1$ E $f(1) = 1$ F none of these

---

9. Select expressions equivalent to the system of equations:

$$x - y = 1$$
$$2y = -11$$

A $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 & \frac{1}{2} \\ 0 & \frac{1}{2} \end{bmatrix} \begin{bmatrix} 1 \\ -11 \end{bmatrix}$

B $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -2 & 0 \\ 0 & -1 \end{bmatrix}^{-1} \begin{bmatrix} 1 \\ -1 \end{bmatrix}$

C $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -\frac{1}{2} \\ 1 \end{bmatrix}$

D $\begin{bmatrix} 1 & -1 \\ 0 & 2 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ -11 \end{bmatrix}$

E $\begin{bmatrix} -2 & 0 \\ 0 & -1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ -1 \end{bmatrix}$

F $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -\frac{1}{2} & 0 \\ 0 & -1 \end{bmatrix} \begin{bmatrix} 1 \\ -1 \end{bmatrix}$

G $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -\frac{9}{2} \\ -\frac{11}{2} \end{bmatrix}$

H $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 & -1 \\ 0 & 2 \end{bmatrix}^{-1} \begin{bmatrix} 1 \\ -11 \end{bmatrix}$

I none of these

---

10. Suppose

$$\begin{vmatrix} x & y & z \\ a & b & c \\ -2 & -1 & -5 \end{vmatrix} = 28$$

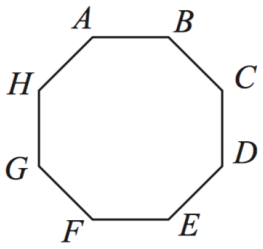
Use the properties of determinants to find:

$$\begin{vmatrix} x & y & z \\ 8 & 4 & 20 \\ a & b & c \end{vmatrix}$$

A 18 B -108 C 119 D -85 E not enough information given F 112 G none of these

---

11. A regular octagon ABCDEFGH has an area of 180 sqft. What is the area of the rectangle ABEF ?



A $90\sqrt{2}$

B $60\sqrt{2}$

C $60\sqrt{3}$

D 90

E $90\sqrt{5}$

F $180\sqrt{6}$

G $90\sqrt{3}$

H none of these

---

12. Suppose

$$A = \begin{bmatrix} 1 & 0 \\ -3 & -29 \end{bmatrix}$$

If it exists, find the inverse, A^{-1}

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

B $\begin{bmatrix} \frac{23}{28} & \frac{5}{28} \\ \frac{1}{28} & -\frac{1}{28} \end{bmatrix}$

C $\begin{bmatrix} 1 & 0 \\ -\frac{3}{29} & -\frac{1}{29} \end{bmatrix}$

D $\begin{bmatrix} 1 & -\frac{1}{6} \\ 0 & \frac{1}{6} \end{bmatrix}$

E $\begin{bmatrix} 0 & -\frac{1}{3} \\ \frac{1}{2} & -\frac{1}{6} \end{bmatrix}$

F none of these

---

13. Solve the system

$$-4\,x^2 + 2\,y^2 = -14$$
$$-3\,x - 2\,y = 2$$

A $[[x = 1, y = (-4)], [x = 1, y = 4]]$

B $[[x = 1, y = (-2)], [x = (-6), y = 5]]$

C $[[x = (-4), y = 5], [x = (-8), y = 11]]$

D

$$[[x = (-3), y = 0], [x = (-9), y = (-6)]]$$

E

$$[[x = (-1), y = 2], [x = (-1), y = (-2)]]$$

F none of these

---

14. Given

$$\begin{bmatrix} -4 & 0 & 2 & -3 \\ -2 & 1 & 0 & 1 \\ 1 & -1 & 0 & -32 \end{bmatrix}$$

Determine the associated linear system of equations.

A

$$\begin{aligned} z &= 0 \\ x - y - 2z &= 1 \\ x + 2y - z &= -1 \end{aligned}$$

B

$$\begin{aligned} -4x + 2z &= -3 \\ -2x + y &= 1 \\ x - y &= -32 \end{aligned}$$

C

$$\begin{aligned} 7x + y + z &= 5 \\ y &= 4 \\ 5x - 3y + 2z &= 1 \end{aligned}$$

D

$$\begin{aligned} -x &= 3 \\ -2x - z &= 1 \\ -8x - 3y - z &= 2 \end{aligned}$$

E none of these

---

15. Solve the system of equations.

$$\begin{aligned} -3x + 2y &= (-3) \\ -4x + 3y + 4z &= (-3) \\ -3x + y + 2z &= 1 \end{aligned}$$

A $[[x = (-13), y = (-10), z = (-1)]]$

B $[[x = 1, y = 2, z = 1]]$

C $\left[\left[x = 0, y = (-1), z = \left(-\frac{3}{2}\right)\right]\right]$

D $\left[\left[x = (-1), y = (-3), z = \left(\frac{1}{2}\right)\right]\right]$

E none of these

---

16. Suppose

$$\begin{vmatrix} x & y & z \\ a & b & c \\ -5 & 4 & 4 \end{vmatrix} = 12$$

Use the properties of determinants to find:

$$\begin{vmatrix} x & y & z \\ a & b & c \\ 35 & -28 & -28 \end{vmatrix}$$

A not enough information given B -252 C 42 D -126 E -84 F -189 G none of these

---

17. Suppose

$$A = \begin{bmatrix} -2 & 5 & -1 \\ -4 & -1 & -10 \\ 2 & -2 & 1 \end{bmatrix}$$

compute $\det(A)$

A 2 B -27 C 27 D -48 E -8 F none of these

---

18. Suppose

$$\begin{vmatrix} x & y & z \\ a & b & c \\ 5 & -5 & 2 \end{vmatrix} = 14$$

Use the properties of determinants to find:

$$\begin{vmatrix} x & y & z \\ 20 & -20 & 8 \\ a & b & c \end{vmatrix}$$

A 34 B −20 C 144 D −56 E not enough information given F −112 G none of these

19. There are 1300 light bulbs lined up in a row in a long room. Each bulb has its own switch and is currently switched off. The room has an entry door and an exit door. There are 1300 people lined up outside the entry door. Each bulb is numbered consecutively from 1 to 1300. So is each person.

    Person No. 1 enters the room, switches on every bulb, and exits. Person No. 2 enters and flips the switch on every second bulb (turning off bulbs 2, 4, 6...). Person No. 3 enters and flips the switch on every third bulb (changing the state on bulbs 3, 6, 9...). This continues until all 1300 people have passed through the room. How many of the light bulbs are illuminated after the 1300th person has passed through the room?

A 40

B 33

C 43

D 36

E 35

F none of these

20. What is the units digits of

$$8^{4429}$$

A 8

B 6

C 9

D 7

E 1

F none of these

21. Suppose

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

select the implication/s

A $x = \dfrac{\begin{vmatrix} -2 & -4 \\ -1 & 2 \end{vmatrix}}{\begin{vmatrix} -1 & -4 \\ 2 & 2 \end{vmatrix}}$

B $y = \dfrac{\begin{vmatrix} -1 & -2 \\ 2 & -1 \end{vmatrix}}{\begin{vmatrix} -1 & -4 \\ 2 & 2 \end{vmatrix}}$

C $y = \dfrac{\begin{vmatrix} -2 & -4 \\ -1 & 2 \end{vmatrix}}{\begin{vmatrix} -1 & -4 \\ 2 & 2 \end{vmatrix}}$

D $x = \dfrac{\begin{vmatrix} -1 & -2 \\ 2 & -1 \end{vmatrix}}{\begin{vmatrix} -1 & -4 \\ 2 & 2 \end{vmatrix}}$

E none of these

22. Suppose

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

If it exists, find the inverse, A^{-1}

A $\begin{bmatrix} \frac{2}{7} & \frac{1}{21} & \frac{178}{7} \\ \frac{3}{7} & -\frac{2}{21} & \frac{260}{7} \\ 0 & 0 & -1 \end{bmatrix}$

B $\begin{bmatrix} \frac{4}{837} & -\frac{49}{837} & -\frac{19}{279} \\ -\frac{17}{837} & -\frac{1}{837} & \frac{11}{279} \\ \frac{1}{93} & \frac{11}{93} & -\frac{28}{31} \end{bmatrix}$

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

D $\begin{bmatrix} -\frac{1}{5} & \frac{2}{5} & 0 \\ -\frac{2}{5} & -\frac{1}{5} & 0 \\ -\frac{1}{15} & \frac{7}{15} & \frac{1}{6} \end{bmatrix}$

E $\begin{bmatrix} \frac{29}{5} & \frac{4}{3} & \frac{9}{3} \\ \frac{7}{5} & \frac{2}{5} & \frac{2}{5} \\ \frac{6}{5} & \frac{1}{5} & \frac{1}{5} \end{bmatrix}$

F none of these

---

23. Suppose $A = \begin{bmatrix} 4 & 0 \\ 2 & 0 \end{bmatrix}$, $B = \begin{bmatrix} -1 & -1 & 4 \\ 0 & 2 & -1 \end{bmatrix}$ and $C = \begin{bmatrix} -1 & -2 & -1 \\ 2 & -1 & 29 \\ 0 & 2 & -1 \end{bmatrix}$. Find $AB + BC$

A $\begin{bmatrix} -5 & 7 & -16 \\ 2 & -6 & 67 \end{bmatrix}$

B $\begin{bmatrix} 11771 & 906 & 26 \\ 8 & -77 & 5 \end{bmatrix}$

C dimensions are not compatible for operations

D $\begin{bmatrix} 22 & 14 & 7 \\ -7 & 3 & -7 \end{bmatrix}$

E $\begin{bmatrix} -5 & 0 & -33 \\ 93 & 12 & 9 \end{bmatrix}$

F $\begin{bmatrix} -2 & 2 & -2 \\ -2 & 5 & 1 \end{bmatrix}$

G none of these

---

24. Suppose

$$\begin{aligned} -5\,z &= -1 \\ -x - z &= -1 \\ x + y - z &= -1 \end{aligned}$$

select the implication/s

A

$$z = \frac{\begin{vmatrix} 0 & -1 & -5 \\ -1 & -1 & -1 \\ 1 & -1 & -1 \end{vmatrix}}{\begin{vmatrix} 0 & 0 & -5 \\ -1 & 0 & -1 \\ 1 & 1 & -1 \end{vmatrix}}$$

B

$$z = \frac{\begin{vmatrix} 0 & 0 & -1 \\ -1 & 0 & -1 \\ 1 & 1 & -1 \end{vmatrix}}{\begin{vmatrix} 0 & 0 & -5 \\ -1 & 0 & -1 \\ 1 & 1 & -1 \end{vmatrix}}$$

C

$$y = \frac{\begin{vmatrix} -1 & 0 & -5 \\ -1 & 0 & -1 \\ -1 & 1 & -1 \end{vmatrix}}{\begin{vmatrix} 0 & 0 & -5 \\ -1 & 0 & -1 \\ 1 & 1 & -1 \end{vmatrix}}$$

D

$$x = \frac{\begin{vmatrix} -1 & 0 & -5 \\ -1 & 0 & -1 \\ -1 & 1 & -1 \end{vmatrix}}{\begin{vmatrix} 0 & 0 & -5 \\ -1 & 0 & -1 \\ 1 & 1 & -1 \end{vmatrix}}$$

E

$$x = \frac{\begin{vmatrix} 0 & 0 & -1 \\ -1 & 0 & -1 \\ 1 & 1 & -1 \end{vmatrix}}{\begin{vmatrix} 0 & 0 & -5 \\ -1 & 0 & -1 \\ 1 & 1 & -1 \end{vmatrix}}$$

F

$$y = \frac{\begin{vmatrix} 0 & -1 & -5 \\ -1 & -1 & -1 \\ 1 & -1 & -1 \end{vmatrix}}{\begin{vmatrix} 0 & 0 & -5 \\ -1 & 0 & -1 \\ 1 & 1 & -1 \end{vmatrix}}$$

G none of these

---

25. Suppose $a-6=b-4=c+5=d-3=a+b+c+d+5$ Find the value of $a+b+c+d$

A 2

B -4

C $\frac{28}{3}$

D $-\frac{28}{3}$

E none of these

---

26. Suppose

$$A = \begin{bmatrix} -2 & -3 & -1 \\ 0 & -3 & -6 \\ 2 & 6 & 1 \end{bmatrix}$$

compute $\det(A)$

A -10 B 0 C 712 D -36 E -66

F none of these

---

27. Suppose

$$A = \begin{bmatrix} -4 & 0 \\ 1 & -1 \end{bmatrix}$$

If it exists, find the inverse, A^{-1}

A $\begin{bmatrix} -\frac{1}{11} & 0 \\ 0 & \frac{1}{2} \end{bmatrix}$

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

C $\begin{bmatrix} -\frac{1}{4} & 0 \\ -\frac{1}{4} & -1 \end{bmatrix}$

D $\begin{bmatrix} \frac{1}{3} & \frac{1}{12} \\ 0 & -\frac{1}{4} \end{bmatrix}$

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

F none of these

---

28. Solve the system of equations.

$$x + 3\,y + 2\,z = 4$$

$$y - 4\,z = 2$$

$$x + 2\,y - z = 2$$

A $[[x = (-2), y = 2, z = 0]]$

B $[[x = 2, y = (-5), z = (-3)]]$

C $[[x = (-1), y = (-2), z = (-2)]]$

D $[[x = 4, y = (-1), z = 0]]$

E none of these

29. Given

$$\left[\begin{array}{rrrr} -1 & 0 & 0 & 8 \\ 2 & -1 & 1 & 3 \\ 1 & 1 & 0 & 1 \end{array}\right]$$

Determine the associated linear system of equations.

A

$$\begin{aligned} -x &= -30 \\ 2x + 7y + z &= -4 \\ 9x + y &= 0 \end{aligned}$$

B

$$\begin{aligned} -2x + 2y &= 1 \\ x + 5y + 3z &= 2 \\ x &= -1 \end{aligned}$$

C

$$\begin{aligned} -x &= 8 \\ 2x - y + z &= 3 \\ x + y &= 1 \end{aligned}$$

D

$$\begin{aligned} -x + y + z &= 0 \\ 2x - z &= 0 \\ -5x + z &= -4 \end{aligned}$$

E none of these

30. Suppose

$$\left|\begin{array}{rrr} x & y & z \\ a & b & c \\ 4 & -6 & 3 \end{array}\right| = 4$$

Use the properties of determinants to find:

$$\left|\begin{array}{rrr} x & y & z \\ a & b & c \\ a+4 & b-6 & c+3 \end{array}\right|$$

A 4 B not enough information given C -78

D 52 E -63 F 22 G none of these