

$$1. \begin{cases} 2x - y - 3z = -5 \\ x + 3y - z = 11 \\ x - 5z = 3 \end{cases}$$

$$\begin{pmatrix} 2 & -1 & -3 & | & -5 \\ 1 & 3 & -1 & | & 11 \\ 1 & 0 & -5 & | & 3 \end{pmatrix} \sim \begin{pmatrix} 0 & -1 & 7 & | & -11 \\ 0 & 3 & 4 & | & 8 \\ 0 & 0 & 25 & | & -25 \end{pmatrix}$$

↓

$$x - 5z = 3 \quad -y + 7z = -11 \quad 25z = 25$$

$$x + 5z = 3 \quad -y - 7z = -11 \quad z = 1$$

$$x = 3 - 5z \quad -y = -4 + (-1)$$

$$x = -2$$

$$y = 4$$

$$2. \begin{cases} x = 2y \\ 2y = 3z \\ x + y + z = 11 \end{cases}$$

$$x = 2y$$

$$2y = 3z$$

$$2y = 2$$

$$y = 1$$

$$x + y + z = 11$$

$$z = 2y$$

$$x = -2$$

$$y = 4$$

$$2. \begin{cases} x = 2y \\ 2y = 3z \\ x + y + z = 11 \end{cases}$$

$$x = 2y$$

$$2y = 3z$$

$$2y = 2$$

$$3$$

$$x + y + z = 11$$

$$\frac{2y}{3} + y + \frac{2y}{3} = 11$$

$$6y + 3y + 2y = 33$$

$$11y = 33$$

$$y = 3$$

$$x = 2y$$

$$x = 2 \cdot 3$$

$$x = 6$$

$$z = \frac{2y}{3}$$

$$z = \frac{6}{3}$$

$$z = 2$$

$$x + 2y + 3z \rightarrow 6 + 2 \cdot 3 + 3 \cdot 2 \rightarrow 6 + 6 + 6 \rightarrow 18$$

Letra B.

$$3. \begin{cases} x + y + z = 0 \\ 2x - y - 2z = 1 \\ 6y + 3z = -12 \end{cases}$$

$$\left(\begin{array}{ccc|c} 1 & 1 & 1 & 0 \\ 2 & -1 & -2 & 1 \\ 0 & 6 & 3 & -12 \end{array} \right) \sim \left(\begin{array}{ccc|c} 1 & 1 & 1 & 0 \\ 3 & 0 & -1 & 1 \\ -6 & 0 & -3 & -12 \end{array} \right) \sim \left(\begin{array}{ccc|c} 1 & 1 & 1 & 0 \\ 3 & 0 & -1 & 1 \\ 0 & 0 & -5 & -10 \end{array} \right)$$

$$-5z = -10$$

$$z = \frac{-10}{-5}$$

Letra D.

$$z = 2$$

$$4. \begin{cases} A + B + C = 68 \end{cases}$$

$$B + \frac{20C}{100} = A$$

$$C + \frac{20A}{100} = 3B$$

$$B + \frac{20C}{100} = A$$

$$\frac{20C}{100} = A - B$$

$$20C = 100(A - B) \div 20$$

$$C = 5A - 5B$$

Letra D.

$$z=2$$

$$4. \quad A+B+C=68$$

$$B + \frac{20C}{100} = A$$

$$C + \frac{20A}{100} = 3B$$

$$B + \frac{20C}{100} = A$$

$$\frac{20C}{100} = A - B$$

$$20C = 100(A - B) \div 20$$

$$C = 5A - 5B$$

$$A+B+C=68$$

$$C = 68 - A - B$$

$$5A - 5B = 68 - A - B$$

$$6A - 4B = 68 \quad | :2 |$$

$$3A - 2B = 34$$

$$60A - 20B = 680 \quad | :4 |$$

$$15A - 5B = 170$$

$$A = 680$$

$$34$$

$$A = 20$$

$$C + \frac{20A}{100} = 3B$$

$$5A - 5B + \frac{20A}{100} = 3B$$

$$50A - 500B + 20A = 300B$$

$$70A = 800B \quad | :10 |$$

$$7A = 80B$$

$$520A - 800B = 0 \quad | :20 |$$

$$26A - 40B = 0$$

$$26A = 40B$$

$$26A = 40B$$

$$C = 5A - 5B$$

$$26 \cdot 20 = 40B$$

$$C = 100 - 65$$

$$520 = 40B$$

$$C = 35$$

$$B = \frac{520}{40}$$

$$B = 13$$

$$A - C - A = 35 - 20 = 15 \rightarrow 15 \neq 15$$

$$B - A - B = 20 - 13 = 7 \rightarrow 7 \neq 15$$

$$C - C - A = 35 - 20 = 15 \rightarrow 15 \neq 8$$

$$D - A - B = 20 - 13 = 7 \rightarrow 7 \neq 8$$

$$E - C - A = 35 - 20 = 15 \rightarrow 15 \neq 6$$

Letra A.

5. A =	0	3	4	x =	x	t =	134
	1	0	5		u		115

Letra A.

$$5. A = \begin{bmatrix} 0 & 3 & 4 \\ 1 & 0 & 5 \\ 2 & 1 & 0 \end{bmatrix}$$

$$x = \begin{bmatrix} x \\ y \\ z \end{bmatrix}$$

$$t = \begin{bmatrix} 134 \\ 115 \\ 48 \end{bmatrix}$$

$$A \cdot x = t \rightarrow$$

$$3y + 4z$$

$$134$$

$$x + 5z$$

$$115$$

$$2x + y$$

$$48$$

$$x + 5z = 115$$

$$2x + y = 48$$

$$3y + 4z = 134$$

$$x = 115 - 5z$$

$$2(115 - 5z) + y = 48$$

$$3(182 + 10z) + 4z = 134$$

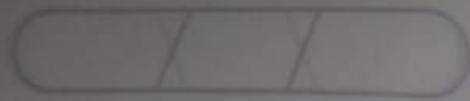
$$y = 48 - 230 + 10z$$

$$-546 + 30z + 4z = 134$$

$$34z = 134 + 546$$

$$34z = 680$$

$$z = 20$$



$$x + 5z = 115$$

$$2x + y = 48$$

$$x + 5 \cdot 20 = 115$$

$$2 \cdot 15 + y = 48$$

$$x = 115 - 100$$

$$y = 48 - 30$$

$$x = 15$$

$$y = 18$$

$$x + y + z \rightarrow 15 + 18 + 20 = 53$$

Letra A.