

# SUSTITUCIÓN

$$\begin{array}{l} 5x + 2y + 4z = 12 \\ -3x + 3y + 3z = 56 \\ 2x - y - z = 69 \end{array} \quad \text{RESOLVER ECUACIÓN PARA Y}$$

SUSTITUIR VALOR DE Y

$$5x + 2(-69 + 2x - z) + 4z = 12$$

$$-3x + 3(-69 + 2x - z) + 3z = 56$$

SIMPLIFICAR

$$9x + 2z = 150$$

$$x = \frac{263}{3}$$

SUSTITUIR "X" y RESOLVER ECUACIÓN

$$9\left(\frac{263}{3}\right) + 2z = 150$$

$$z = \frac{-639}{2}$$

SUSTITUIR "Z" "X" y RESOLVER

$$y = -69 + 2\left(\frac{263}{3}\right) - \left(\frac{-639}{2}\right)$$

$$y = \frac{2555}{6}$$

RESULTADO

$$x = \frac{263}{3} \quad y = \frac{2555}{6} \quad z = \frac{639}{2}$$

SIN SOLUCION

ELIMINACION

$$5x - 2y - 3z = 22 \quad \text{MULTIPLICAR } x + 2y + 9z = 22 \text{ POR } 5$$

$$x + 2y - 9z = 22 \quad 5x - 2y - 3z = 110$$

$$-4x + 3y + 8z = 45 \quad 5x + 10y + 45z = 110$$

$$-4x + 3y + 8z = 45$$

$$\text{MULTIPLICAR } 5x - 2y - 3z = 22 \text{ POR } 4$$

$$\text{II} \quad -4x + 3y + 8z = 45 \text{ POR } 5$$

$$20x - 8y - 12z = 88 \quad -20x + 15y + 40z = 225$$

$$12y + 48z = 88$$

+

$$-20x + 15y + 40z = 225$$

$$2x - 8y - 12z = 88$$

$$7y + 28z = 313$$

$$\text{MULTIPLICAR } 12y + 48z = 88 \text{ POR } 7$$

$$\text{II} \quad 7y + 28z = 313 \text{ POR } 12$$

$$20x - 8y - 12z = 88$$

$$84y + 336z = 3756$$

$$20x - 8y - 12z = 88$$

$$84y + 336z = 616$$

$$84y + 336z = 616$$

-

$$0 = 3140$$

$$84y + 336z = 3756$$

$$84y + 336z = 616$$

$$0 = 3140$$

## ELIMINACIÓN DE GAUSS

$$12x - 14y - 45z = 120$$

$$645x + 120y + 3z = -600$$

$$-5x - 2y + z = 60$$

ESCRIBIR UNA MATRIZ CON LOS  
COEFICIENTES Y SOLUCIONES

$$\begin{array}{ccc|c} 12 & -14 & -45 & 120 \\ 645 & 120 & 3 & -600 \\ -5 & -2 & 1 & 60 \end{array}$$

REDUCIR MATRIZ A SU FORMA ESCALONADA REDUCIDA  
POR RENGLONES

$$\begin{array}{ccc|c} 1 & 0 & 0 & \frac{45700}{6967} \\ 0 & 1 & 0 & \frac{-282510}{6967} \\ 0 & 0 & 1 & \frac{81500}{6967} \end{array}$$

RESULTADO

$$x = \frac{4570}{6967}$$

$$y = \frac{-282510}{6967}$$

$$z = \frac{81500}{6967}$$