



Mi Universidad

Ecuaciones

Nombre del Alumno: Egener Martínez Méndez

Nombre del tema: Ecuaciones método de sustitución, igualación y formula general

Parcial: 1

Nombre de la Materia: Matemáticas aplicadas a las ciencias sociales

Nombre del profesor: Magner Joel Herrera

Nombre de la Licenciatura: Contabilidad publica

Cuatrimestre: 2

Ejercicios metodo de sustitucion

① $x + 8y = 23$
 $x + y = 9$

$$\begin{aligned} x + 8y &= 23 \\ x &= 23 - 8y \end{aligned}$$

$$\begin{aligned} x + y &= 9 \\ x &= 9 - y \\ x &= 7 \end{aligned}$$

$$\begin{aligned} 23 - 8y + y &= 9 \\ 23 - 7y &= 9 \\ -7y &= 9 - 23 \\ -7y &= -14 \\ y &= \frac{-14}{-7} \\ y &= 2 \end{aligned}$$

Comprobacion

$$\begin{aligned} 7 + 8(2) &= 23 \\ 7 + 16 &= 23 \\ 23 &= 23 \end{aligned}$$

$$\begin{aligned} 7 + 2 &= 9 \\ 9 &= 9 \end{aligned}$$

② $3x - 4y = -6$
 $x + 2y = 8$

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

$$\begin{aligned} x + 2y &= 8 \\ x + 2(3) &= 8 \\ x + 6 &= 8 \\ x &= 8 - 6 \\ x &= 2 \end{aligned}$$

$$\begin{aligned} 3x - 4y &= -6 \\ 3(8 - 2y) - 4y &= -6 \\ 24 - 6y - 4y &= -6 \\ 24 - 10y &= -6 \\ -10y &= -6 - 24 \\ -10y &= -30 \\ y &= \frac{-30}{-10} \\ y &= 3 \end{aligned}$$

Comprobacion

$$\begin{aligned} 3(2) - 4(3) &= -6 \\ 6 - 12 &= -6 \\ -6 &= -6 \end{aligned}$$

$$\begin{aligned} 2 + 2(3) &= 8 \\ 2 + 6 &= 8 \\ 8 &= 8 \end{aligned}$$

Ejercicios de igualacion

$$\begin{aligned} 3x - 2y &= 4 \\ 5x + 3y &= 13 \end{aligned}$$

$$\begin{array}{l} 3x - 2y = 4 \\ 3x = 4 + 2y \\ x = \frac{4 + 2y}{3} \end{array} \qquad \begin{array}{l} 5x + 3y = 13 \\ 5x = 13 - 3y \\ x = \frac{13 - 3y}{5} \end{array}$$

$$\frac{4 + 2y}{3} = \frac{13 - 3y}{5}$$

$$5(4 + 2y) = 3(13 - 3y)$$

$$x = \frac{4 + 2\left(\frac{32}{22}\right)}{3}$$

$$20 + 10y = 39 - 9y$$

$$10y + 9y = 39 - 20$$

$$19y = 19$$

$$y = \frac{19}{19}$$

$$4x + 3y = -1$$

$$3x + 5y = -9$$

$$4x + 3y = -1$$

$$4x = -1 - 3y$$

$$x = \frac{-1 - 3y}{4}$$

$$3x + 5y = -9$$

$$3x = -9 - 5y$$

$$x = \frac{-9 - 5y}{3}$$

$$3\left(\frac{-1 - 3y}{4}\right) = \frac{-9 - 5y}{3}$$

$$-3 - 9y = -12 - 20y$$

$$-9y + 20y = -12 + 3$$

$$11y = -9$$

$$y = \frac{-9}{11} \quad y = -3$$

$$x = \frac{-1 - 3(-3)}{4}$$

$$x = \frac{-1 + 9}{4} \quad x = \frac{8}{4} \quad x = 2$$

Raíces de un polinomio de grado 2

Formula general

$$A) x^2 - 16x + 63 = 0$$

$$a) = 1$$

$$b) = -16$$

$$c) = 63$$

$$x = \frac{-(-16) \pm \sqrt{(-16)^2 - 4(1)(63)}}{2(1)}$$

$$x = \frac{16 \pm \sqrt{256 - 252}}{2}$$

$$x_1 = \frac{18}{2} = 9$$

$$x = \frac{16 \pm \sqrt{4}}{2} = \frac{16 \pm 2}{2}$$

$$x_2 = \frac{14}{2} = 7$$

$$B) 2x^2 + 9x + 10 = 0$$

$$a = 2$$

$$b = 9$$

$$c = 10$$

$$x = \frac{-(9) \pm \sqrt{(9)^2 - 4(2)(10)}}{2(2)}$$

$$x = \frac{-9 \pm \sqrt{81 - 80}}{4}$$

$$x = \frac{-9 \pm \sqrt{1}}{4} = \frac{-9 \pm 1}{4}$$

$$x_1 = \frac{-8}{4} = -2$$

$$x_2 = \frac{-10}{4} = \frac{-5}{2}$$