SISTEMAS DE ECUACIONES: METODO DE IGUALACIÓN

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

$y = \frac{1-5x}{2}$ $\quad y = \frac{5+3x}{3}$

$\frac{1-5x}{2} = \frac{5+3x}{3}$

$3 - 15x = 10 + 6x$

$-21x = 7$

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

$y = \frac{5+3(-\frac{1}{3})}{3}$

$y = \frac{4}{3}$

$5(-\frac{1}{3}) + 2(\frac{4}{3}) = 1$

$-\frac{5}{3} + \frac{8}{3} = 1 \Rightarrow 1 = 1$

2) $\begin{cases} 2x + y = 6 \\ 4x + 3y = 14 \end{cases}$

$y = 6 - 2x$ $\quad y = \frac{14-4x}{3}$

$6 - 2x = \frac{14-4x}{3}$

$18 - 6x = 14 - 4x$

$-2x = -4$

$x = 2$

$y = 6 - 2(2)$

$y = 2$

$4(2) + 3(2) = 14$

$8 + 6 = 14$

3) $\begin{cases} 5x - 2y = 2 \\ x + 2y = 2 \end{cases}$

$x = \frac{2+2y}{5}$ $\quad x = 2 - 2y$

$\frac{2+2y}{5} = 2 - 2y$

$2 + 2y = 10 - 10y$

$12y = 8$

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

$x = 2 - 2(\frac{2}{3})$

$x = \frac{2}{3}$

$5(\frac{2}{3}) - 2(\frac{2}{3}) = 2$

$\frac{6}{3} = 2 \Rightarrow 2 = 2$

4) $\begin{cases} 5x - y = 3 \\ -2x + 4y = -12 \end{cases}$

$x = \frac{3+y}{5}$ $\quad x = -\frac{-12-4y}{2}$

$\frac{3+y}{5} = \frac{12+4y}{2}$

$6 + 2y = 60 + 20y$

$-18y = 54$

$y = -3$

$x = \frac{3+(-3)}{5}$

$x = 0$

$-2(0) + 4(-3) = -12$

$-12 = -12$

5) $\begin{cases} 3x + 5y = 15 \\ 2x - 3y = -9 \end{cases}$

$y = \frac{15-3x}{5}$ $\quad y = -\frac{-9-2x}{3}$

$\frac{15-3x}{5} = \frac{9+2x}{3}$

$45 - 9x = 45 + 10x$

$x = 0$

$y = \frac{15+3(0)}{5}$

$y = 3$

$2(0) - 3(3) = -9$

$-9 = -9$

6) $\begin{cases} 4x + 6y = 2 \\ 6x + 5y = 1 \end{cases}$

$y = \frac{2-4x}{6}$ $\quad y = \frac{1-6x}{5}$

$\frac{2-4x}{6} = \frac{1-6x}{5}$

$10 - 20x = 6 - 36x$

$16x = -4$

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

$y = \frac{1-6(-\frac{1}{4})}{5}$

$y = \frac{5/2}{5}$

$y = \frac{1}{2}$

$4(-\frac{1}{4}) + 6(\frac{1}{2}) = 2$

$-1 + 3 = 2$

$2 = 2$

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