UNIVERSIDAD INTERAMERICANA PARA EL DESARROLLO

Alumno:

Julián Isagí Velázquez Mendoza

Correo institucional:

00834545 @red.unid.mx

Id de alumno:

00834545

Materia:

23234-LMEI-MTS01-Álgebra Superior

Maestra:

Adriana Cruz Sedano

Trabajo:

Actividad de Aprendizaje 7

UNID

FORMANDO CON VALORES

Fecha:

27/02/2025

Cuatrimestre:

2do

Sustitución

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

$x-2y=-3$

$x=-3+2y$

$-2(-3+2y)+2y=0$

$6-4y+2y=0$

$-4y+2y=0-6$

$-2y=-6$

$y=-6/-2$

$y=3$

$x-2(3)=-3$

$x-6=-3$

$x=-3+6$

$x=3$

$3-2(3)=-3$

$3-6=-3$

$-3=-3$

Igualación

2. $\begin{cases} x+3y=8 \\ 3x-y=-6 \end{cases}$

$x=8-3y$

$x=\frac{-6+y}{3}$

$x=x$

$8-3y=\frac{-6+y}{3}$

$3(8-3y)=-6+y$

$24-9y=-6+y$

$-9y-y=-6-24$

$-10y=-30$

$y=-30/-10$

$y=3$

$x+3(3)=8$

$x+9=8$

$x=8-9$

$x=-1$

$-1+3(3)=8$

$-1+9=8$

$8=8$

Reducción

3: $\begin{cases} 2x-3y=2 \\ 4x+2y=20 \end{cases}$ (-2)

$-4x+6y=-4$
$4x+2y=20$

$8y=16$
$y=\frac{16}{8}$
$y=2$

$2x-3(2)=2$
$2x-6=2$
$2x=2+6$
$2x=8$
$x=8/2$
$x=4$

$2(4)-3(2)=2$
$8-6=2$
$2=2$

Sustitución

4: $\begin{cases} 2x+4y=9 \\ 4x-2y=-2 \end{cases}$

$2x+4y=9$
$-x=\frac{9-4x}{2}$

$4\left(\frac{9-4y}{2}\right)-2y=-2$
$\frac{36-16y}{2}-2y=-2$
$18-8y-2y=-2$
$-8y-2y=-2-18$
$-10y=-20$
$y=\frac{-20}{-10}$
$y=2$

$2x+4(2)=9$
$2x+8=9$
$2x=9-8$
$2x=1$
$x=1/2$

$2(\frac{1}{2})+4(2)=9$
$1+8=9$
$9=9$

Igualación

5: $\begin{cases} 2a-b=2 \\ 3a+3b=21 \end{cases}$

$b=2a-2$
$b=\frac{21-3a}{3}$
$2a-2=\frac{21-3a}{3}$
$2a-2=7-a$
$2a+a=7+2$
$3a=9$
$a=9/3$
$a=3$

$2(3)-b=2$
$6-b=2$
$-b=2-6$
$b=6-2$
$b=4$

$2(3)-4=2$
$6-4=2$
$2=2$

Reducción

6.- $\begin{cases} -x+5y=-7 \quad (2) \\ 2x-3y=7 \end{cases}$

$-2x+10y=-14$

$2x+3y=7$

$7y=-7$

$y=\frac{-7}{7}$

$y=-1$

$-x+5(-1)=-7$

$-x-5=-7$

$-x=-7+5$

$x=7-5$

$x=2$

$-2+5(-1)=-7$

$-2-5=-7$

$-7=-7$

Sustitución

7.- $\begin{cases} 2x-4y=-12 \\ 3x+2y=6 \end{cases}$

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

$3\left(\frac{-12+4y}{2}\right)+2y=6$

$\frac{-36+12y}{2}+2y=6$

$-18+6y+2y=6$

$6y+2y=6+18$

$8y=24$

$y=\frac{24}{8}$

$y=3$

$2x-4(3)=-12$

$2x-12=-12$

$2x=-12+12$

$2x=0$

$x=\frac{0}{2}$

$x=0$

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

$0-12=-12$

$-12=-12$

8.- $\begin{cases} 3u-2v=13 \\ 2u+6v=-6 \end{cases}$ igualación

$u=\frac{13+2v}{3}$

$u=\frac{-6-6v}{2}$ $u=-3-3v$

$\frac{13+2v}{3}=-3-3v$

$13+2v=3(-3-3v)$

$13+2v=-9-9v$

$2v+9v=-9-13$

$11v=-22$

$v=\frac{-22}{11}$

$v=-2$

$3u-2(-2)=13$

$3u+4=13$

$3u=13-4$

$3u=9$

$u=\frac{9}{3}$

$u=3$

$3(3)-2(-2)=13$

$9+4=13$

$13=13$

reducción

9. $\begin{cases} 2x + y = -1 \\ -x + 3y = 4 \end{cases}$ (2)

$2x + y = -1$
$-2x + 6y = 8$
$7y = 7$
$y = \frac{7}{7}$
$y = 1$

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

$2(-1) + 1 = -1$
$-2 + 1 = -1$
$-1 = -1$

Sustitución

10. $\begin{cases} 2x - 3y = 8 \\ x - 4y = -7 \end{cases}$

$x = -7 + 4y$

$2(-7 + 4y) - 3y = 8$
$-14 + 8y - 3y = 8$
$8y - 3y = 8 + 14$
$5y = 22$
$y = \frac{22}{5}$
$y = 4.4$

$2x - 3(4.4) = 8$
$2x - 13.2 = 8$
$2x = 8 + 13.2$
$2x = 21.2$
$x = \frac{21.2}{2}$
$x = 10.6$

$2(10.6) - 3(4.4) = 8$
$21.2 - 13.2 = 8$
$8 = 8$

Igualación

11. $\begin{cases} 3x - y = -9 \\ 2x + y = -1 \end{cases}$

$-y = -9 - 3x$
$y = -1 - 2x$

$y = 9 + 3x$

$9 + 3x = -1 - 2x$
$3x + 2x = -1 - 9$
$5x = -10$
$x = \frac{-10}{5}$
$x = -2$

$3(-2) - y = -9$
$-6 - y = -9$
$-y = -9 + 6$
$y = 9 - 6$
$y = 3$

$3(-2) - 3 = -9$
$-6 - 3 = -9$
$-9 = -9$

reducción

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

$3x-2y=-4$

$4x+2y=4$

$7x=0$

$x=\frac{0}{7}$

$x=0$

$3(0)-2y=-4$

$0-2y=-4$

$-2y=-4$

$y=\frac{-4}{-2}$

$y=2$

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

$0-4=-4$

$-4=-4$

13. sustitución

$\begin{cases} 3x-4y=14 \\ -9x=2y \end{cases}$

$-2y=9x$

$-x=\frac{9x}{2}$

$y=\frac{-9x}{2}$

$3x-4\left(\frac{-9x}{2}\right)=14$

$3x+\frac{36x}{2}=14$

$3x+18x=14$

$21x=14$

$x=\frac{14}{21}$

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

$3\left(\frac{2}{3}\right)-4y=14$

$2-4y=14$

$-4y=14-2$

$-4y=12$

$y=\frac{12}{-4}$

$y=-3$

$3\left(\frac{2}{3}\right)-4(-3)=14$

$2+12=14$

$14=14$

14. igualación

$\begin{cases} y-3x=-8 \\ 3y-5x=y-3 \end{cases}$

$-3x+y=-8$

$-5x+2y=-3$

$y=-8+3x$

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

$-8+3x=\frac{-3+5x}{2}$

$2(-8+3x)=-3+5x$

$-16+6x=-3+5x$

$6x-5x=-3+16$

$x=13$

$y-3(13)=-8$

$y-39=-8$

$y=-8+39$

$y=31$

$31-3(13)=-8$

$31-39=-8$

$-8=-8$

Reducción

15: $\begin{cases} x + 3y = 10x \\ y - 9x = x - 21 \end{cases}$

$-9x + 3y = 0$

$-10x + y = -21 \quad (-3)$

$-9x + 3y = 0$

$30x - 3y = 63$

$21x = 63$

$x = \frac{63}{21}$

$x = 3$

$-9(3) + 3y = 0$

$-27 + 3y = 0$

$3y = 0 + 27$

$y = \frac{27}{3}$

$y = 9$

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

$-27 + 27 = 0$

$0 = 0$