

$$1. \quad 6 \left(\frac{x+1}{8} - \frac{2x-3}{16} \right) = 3 \left(\frac{3x}{4} - \frac{1}{4} \right) - \frac{3}{8} (3x-2)$$

$$6 \left(\frac{(x+1) \cdot 2}{16} - \frac{2x-3}{16} \right) = \frac{9x}{4} - \frac{3}{4} - \frac{9x}{8} + \frac{6}{8}$$

$$6 \cdot \left(\frac{2x+2-2x+3}{16} \right) = \frac{36x-12-18x+12}{16}$$

$$\cancel{12}x+12-\cancel{12}x+18 = 36x-\cancel{12}-18x+\cancel{12}$$

$$30 = 18x$$

$$\boxed{x = \frac{30}{18} = \frac{5}{3}}$$

$$2. \quad 2 - \left[-2(x+1) - \frac{x-3}{2} \right] = \frac{2x}{3} - \frac{5x-3}{12} + 3x$$

$$2 - \left[-2x-2 - \frac{x-3}{2} \right] = \frac{8x}{12} - \frac{5x-3}{12} + \frac{36x}{12}$$

$$2+2x+2+\frac{x-3}{2} = \frac{8x-5x+3+36x}{12}$$

$$4+2x+\frac{x-3}{2} = \frac{39x+3}{12}$$

$$\frac{48+24x+6x-18}{12} = \frac{39x+3}{12}$$

$$30x+30 = 39x+3$$

$$-9x = -27$$

$$\boxed{x = 3}$$

$$3. \quad \frac{(x-1)^2}{2} - \frac{3-4x}{4} = \frac{5+4x}{4}$$

$$\frac{x^2-2x+1}{2} - \frac{3-4x}{4} = \frac{5+4x}{4}$$

$$\frac{2x^2-4x+2-3+4x}{4} = \frac{5+4x}{4}$$

$$2x^2-4x-6=0$$

$$x^2-2x-3=0$$

$$\boxed{x = \frac{2 \pm \sqrt{4+12}}{2} = \frac{2 \pm 4}{2} = \begin{cases} 3 \\ -1 \end{cases}}$$

$$4. \quad \frac{2x+3x^2}{5} - \frac{3x-6}{10} = 1$$

$$4x+6x^2-3x+6=10$$

$$6x^2+x-4=0$$

$$x = \frac{1 \pm \sqrt{1+96}}{12} = \frac{1 \pm \sqrt{97}}{12} = \begin{cases} \frac{1+\sqrt{97}}{12} \\ \frac{1-\sqrt{97}}{12} \end{cases}$$

$$5. \quad \begin{cases} \frac{4x-1}{3} - \frac{2y+2}{5} = -1 \Rightarrow 5(4x-1)-3(2y+2)=-15 \Rightarrow 20x-5-6y-6=-15 \\ \frac{x+3}{3} - \frac{4y-1}{3} = 7 \Rightarrow x+3-(4y-1)=21 \Rightarrow x+3-4y+1=21 \end{cases}$$

$$\begin{cases} 20x-6y=-4 \\ x-4y=17 \Rightarrow x=17+4y \end{cases} \leftarrow \text{substituyo}$$

$$20(17+4y)-6y=-4$$

$$340+80y-6y=-4$$

$$74y=-344$$

$$y = \frac{-344}{74} = \frac{-172}{37}$$

$$x = 17 - \frac{688}{37} = \frac{-59}{37}$$

6.

$$\begin{cases} 9x-5y=13 \\ -7x+5y=-9 \end{cases} \quad \text{Reduccion}$$

$$2x = 4$$

$$\boxed{x=2}$$

$$\boxed{y} = \frac{13-9x}{-5} = \frac{13-18}{-5} = \frac{-5}{-5} = \boxed{1}$$