

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

$$\frac{3x+2}{2(x-1)} + \frac{x^2-10x+2}{6(x-1)(x+1)} = \frac{5x-1}{3(x+1)}$$

$$\frac{3(3x+2)(x+1) + x^2-10x+2 - 2(5x-1)(x-1)}{6(x-1)(x+1)} = 0$$

c.a.: x ≠ ±1

$$3(3x^2+5x+2) + x^2-10x+2 - 2(5x^2-6x+1) = 0$$

$$9x^2+15x+6 + x^2-10x+2 - 10x^2+12x-2 = 0$$

$$17x+6 = 0$$

$$x = -\frac{6}{17}$$

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

$$\frac{5x-10}{x+2} - 3 - \frac{2x-6}{x+3} = 0$$

$$\frac{(5x-10)(x+3) - 3(x+2)(x+3) - (2x-6)(x+2)}{(x+2)(x+3)} = 0$$

c.a.: x ≠ -2; x ≠ -3

$$5x^2+15x-10x-30 - 3(x^2+5x+6) - (2x^2-2x-12) = 0$$

$$5x^2+15x-10x-30 - 3x^2-15x-18 - 2x^2+2x+12 = 0$$

$$-8x-36 = 0$$

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

$$3. \quad \begin{cases} 3x-5y=1 \\ x-5y=2 \end{cases}$$

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

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

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

$$\frac{10y}{10y} = -5 \Rightarrow y = -\frac{1}{2}$$

$$\begin{cases} x = -\frac{1}{2} \\ y = -\frac{1}{2} \end{cases}$$

$$4. \quad \begin{cases} x-y+1=0 \\ \frac{1}{x} - \frac{2}{y} = 0 \end{cases}$$

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

c.a.: x ≠ 0; y ≠ 0

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

$$\begin{cases} -x = -1 \\ y = 2x \end{cases}$$

$$\begin{cases} x = 1 \\ y = 2 \end{cases}$$

$$5. \begin{cases} y + 12 = \frac{4}{3}x \\ 3x = 2y + 30 \\ 4x - 3y = 36 \\ 3x - 2y = 30 \end{cases}$$

$$D = \begin{vmatrix} 4 & -3 \\ 3 & -2 \end{vmatrix} = -8 + 9 = 1$$

$$D_x = \begin{vmatrix} 36 & -3 \\ 30 & -2 \end{vmatrix} = -72 + 90 = 18$$

$$D_y = \begin{vmatrix} 4 & 36 \\ 3 & 30 \end{vmatrix} = 120 - 108 = 12$$

$$\begin{cases} x = 18 \\ y = 12 \end{cases}$$

$$6. N_1 = x$$

$$N_2 = 52 - x$$

$$\frac{x}{52 - x} = \frac{5}{8}$$

$$8x = 260 - 5x$$

$$13x = 260$$

$$x = 20$$

$$N_1 = 20 \quad N_2 = 32$$