

$$1. \frac{7x}{x-3} + \frac{2}{3x+9} = \frac{5-64x-21x^2}{27-3x^2}$$

$$\frac{7x}{x-3} + \frac{2}{3(x+3)} = \frac{5-64x-21x^2}{3(3-x)(3+x)}$$

$$\frac{7x}{x-3} + \frac{2}{3(x+3)} + \frac{5-64x-21x^2}{3(x-3)(3+x)} = 0$$

$$\frac{21x^2 + 63x + 2x - 6 + 5 - 64x - 21x^2}{3(x-3)(3+x)} = 0$$

$$x - 1 = 0$$

c.a.: $x \neq \pm 3$

$$x = 1$$

$$2. \frac{4}{3x^2+x} - \frac{1}{3x^2-x} = \frac{24}{9x^2-1}$$

$$\frac{4}{x(3x+1)} - \frac{1}{x(3x-1)} = \frac{24}{(3x+1)(3x-1)}$$

$$\frac{12x-4-3x-1-24x}{x(3x+1)(3x-1)} = 0$$

$$-15x-5 = 0$$

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

c.a.: $x \neq \pm \frac{1}{3}; x \neq 0$ non accettabile per c.a. \Rightarrow

imp.

$$3. \begin{cases} 9x - 13y = 4 \\ 3x - 7y = 4 \end{cases}$$

$$D = \begin{vmatrix} 9 & -13 \\ 3 & -7 \end{vmatrix} = -63 + 39 = -24$$

$$D_x = \begin{vmatrix} 4 & -13 \\ 4 & -7 \end{vmatrix} = -28 + 52 = 24$$

$$D_y = \begin{vmatrix} 9 & 4 \\ 3 & 4 \end{vmatrix} = 36 - 12 = 24$$

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

$$4. \begin{cases} \frac{13}{x} - \frac{10}{y} = \frac{23}{xy} \\ y - 4x = 5 \end{cases}$$

$$\begin{cases} 13y - 10x = 23 \\ y - 4x = 5 \end{cases} \quad \text{c.a.: } x \neq 0; y \neq 0$$

$$\begin{cases} -10x + 13y = 23 \\ -4x + y = 5 \end{cases} \quad \begin{cases} -10x + 13y = 23 \\ y = 5 + 4x \end{cases}$$

$$\begin{cases} -10x + 65 + 52x = 23 \\ y = 5 + 4x \end{cases} \quad \begin{cases} 42x = -42 \\ y = 5 + 4x \end{cases}$$

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

$$5. \begin{cases} 4x + 3y = 9,75 \\ 3x + 2y = 7 \\ -8x - 6y = -19,5 \\ 9x + 6y = 21 \end{cases}$$

$$x = 1,5$$

1 kg di arance costa 1,50 €

$$6. \begin{aligned} h &= \frac{2}{3} b & b &= x \\ 2x + \frac{4}{3} x &= 50 & \frac{5}{3} x &= 25 & x &= 15 \\ b &= 15 \text{ cm} & h &= 10 \text{ cm} \end{aligned}$$

$$A = 15 \text{ cm} \cdot 10 \text{ cm} = 150 \text{ cm}^2$$