

(1) Los op vir x :

(a) $\frac{(x+2)}{4} - \frac{(x-6)}{3} = 0,5$ KGV = 12

$\therefore 3(x+2) - 4(x-6) = 12 \times 0,5$

$3x + 6 - 4x + 24 = 6$

$-x + 30 = 6$

$-x = 6 - 30$

$-x = -24$

$x = 24$

(b) $x(x-3) - (x-1)(x+1) = 2$

$x^2 - 3x - (x^2 + x - x - 1) = 2$

$x^2 - 3x - (x^2 - 1) = 2$

$x^2 - 3x - x^2 + 1 = 2$

$-3x = 2 - 1$

$-3x = 1$

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

(c) $\frac{-7}{x-5} - \frac{2}{x+5} = \frac{2}{x^2-25}$

KGV = $(x-5)(x+5)$
 $x \neq 5$ $x \neq -5$

$\frac{-7}{(x-5)} - \frac{2}{(x+5)} = \frac{2}{(x-5)(x+5)}$

$\therefore -7(x+5) - 2(x-5) = 2$

$-7x - 35 - 2x + 10 = 2$

$-9x - 25 = 2$

$-9x = 2 + 25$

$-9x = 27$

$x = -3$

(d) $(x - 3)(x + 2) = -6$

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

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

$$x^2 - x = 0$$

$$x(x - 1) = 0$$

$$x = 0 \quad \text{of} \quad x - 1 = 0$$

$$x = 1$$

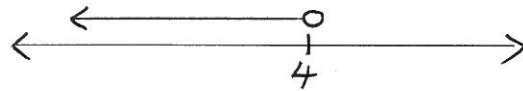
(e) $5x - \overbrace{1(2x + 3)} < 9$

$$5x - 2x - 3 < 9$$

$$3x < 9 + 3$$

$$3x < 12$$

$$x < 4$$



(f) $\frac{4}{x^2 - 4} - \frac{10}{x^2 - x - 6} = \frac{1}{x + 2}$

$$\frac{4}{(x-2)(x+2)} - \frac{10}{(x-3)(x+2)} = \frac{1}{(x+2)}$$

$$\{ \text{KGV} = (x-2)(x+2)(x-3) \quad * \quad \underline{x \neq 2} \quad \underline{x \neq -2} \quad \underline{x \neq 3} \}$$

$$4(x-3) - 10(x-2) = 1(x-3)(x-2)$$

$$4x - 12 - 10x + 20 = x^2 - 2x - 3x + 6$$

$$-6x + 8 = x^2 - 5x + 6$$

$$0 = x^2 - 5x + 6 + 6x - 8$$

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

$$0 = (x+1)(x-2)$$

$$x+1=0 \quad \text{of} \quad x-2=0$$

$$x = -1$$

$$x = 2$$

Nut *

$$(g) \quad \frac{x^2 + 3}{x + 3} = 2x - 1 \quad \text{KGV} = (x + 3) \quad \therefore x \neq -3$$

$$x^2 + 3 = (2x - 1)(x + 3)$$

$$x^2 + 3 = 2x^2 + 6x - 1x - 3$$

$$x^2 + 3 = 2x^2 + 5x - 3$$

$$0 = 2x^2 + 5x - 3 - x^2 - 3$$

$$0 = x^2 + 5x - 6$$

$$0 = (x + 6)(x - 1)$$

$$\therefore x + 6 = 0 \quad \text{or} \quad x - 1 = 0$$

$$x = -6$$

$$x = 1$$

$$(h) \quad \frac{4}{3x} = \frac{-2}{x - 2} \quad \text{KGV} = 3x(x - 2) \quad \therefore x \neq 0 \quad \text{or} \quad x \neq 2$$

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

$$4x - 8 = -6x$$

$$4x + 6x = 8$$

$$10x = 8$$

$$x = \frac{8}{10}$$

$$x = \frac{4}{5}$$

$$(i) \quad 4x + p = 6x - t$$

$$4x - 6x = -t - p$$

$$-2x = -t - p$$

$$x = \frac{-t - p}{-2}$$

$$x = \frac{-(t + p)}{-2}$$

$$x = \frac{t + p}{2}$$

$$(j) \quad 2 < 2 - 3x \leq 3$$

$$2 - 2 < -3x \leq 3 - 2$$

$$0 < -3x \leq 1$$

$$\frac{0}{-3} > \frac{-3x}{-3} \geq \frac{1}{-3}$$

$$0 > x \geq -\frac{1}{3}$$

$$\therefore -\frac{1}{3} \leq x < 0$$

$$(k) \quad \frac{2}{2x^2 - x - 3} + \frac{1}{x^2 - 1} - \frac{4}{2x^2 - 3x} = 0$$

$$\frac{2}{(2x-3)(x+1)} + \frac{1}{(x-1)(x+1)} - \frac{4}{x(2x-3)} = 0$$

$$\left\{ \begin{array}{l} \text{KGV} = (2x-3)(x+1)(x-1)(x) \\ * \therefore x \neq \frac{3}{2} \quad x \neq -1 \quad x \neq 1 \quad x \neq 0 \end{array} \right\}$$

$$2(x)(x-1) + x(2x-3) - 4(x-1)(x+1) = 0$$

$$2x^2 - 2x + 2x^2 - 3x - 4(x^2 - 1) = 0$$

$$\underbrace{4x^2} - 5x - \underbrace{4x^2} + 4 = 0$$

$$-5x = -4$$

$$x = \frac{-4}{-5}$$

$$x = \frac{4}{5}$$

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

$$\text{KGV} = 15x \\ \therefore x \neq 0$$

$$3 \times 3(x-1) + 5(x+2) = 3 \times 15x$$

$$9(x-1) + 5(x+2) = 45x$$

$$9x - 9 + 5x + 10 = 45x$$

$$14x + 1 = 45x$$

$$1 = 45x - 14x$$

$$1 = 31x$$

$$\frac{1}{31} = x$$

(2) Los die volgende vergelykings gelyktydig op:

(a) $3m - 1 = n$ en $n + 2m = 4$

$n = 3m - 1$ --- ① en $n + 2m = 4$ --- ②

Vervang ① in ②:

$$(3m - 1) + 2m = 4$$

$$3m - 1 + 2m = 4$$

$$n = 3(1) - 1$$

$$5m - 1 = 4$$

$$n = 3 - 1$$

$$5m = 4 + 1$$

$$n = 2$$

$$5m = 5$$

$$m = \frac{5}{5}$$

$$m = 1$$

$$\therefore (1; 2)$$

(b) $3x - 2y = 4$ en $9x = 12y$

$3x - 2y = 4$ --- ① en $9x = 12y$ --- ②

$$\frac{9x}{3} = \frac{12y}{3}$$

$3x = 4y$

Vervang ② in ①:

$$4y - 2y = 4$$

$$2y = 4$$

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

$$y = 2$$

$$3x = 4(2)$$

$$3x = 8$$

$$x = \frac{8}{3}$$

$$\therefore \left(\frac{8}{3}; 2\right)$$