

(1) Los op vir x:

(a) $mx - 4 = 2n$

$$mx = 2n + 4$$

$$x = \frac{2n + 4}{m}$$

met $m \neq 0$

(b) $\sqrt{tx} - 1 = y$

$$\sqrt{tx} = y + 1$$

$$(\sqrt{tx})^2 = (y + 1)^2$$

$$tx = (y + 1)^2$$

$$x = \frac{(y + 1)^2}{t}$$

met $t \neq 0$

(c) $\frac{k}{2x} = mn$ KGV = $2x$ $\therefore x \neq 0$

$$k = mn \times 2x$$

$$\therefore 2mnx = k$$

$$x = \frac{k}{2mn}$$

met $m \neq 0$
 $n \neq 0$

(d) $4x - p = kx + 2$

$$4x - kx = 2 + p$$

$$x(4 - k) = 2 + p$$

$$x = \frac{2 + p}{4 - k}$$

met $4 - k \neq 0$
 $\therefore 4 \neq k$

(e) $\frac{7}{t} + \frac{2}{x} = \frac{3}{y}$ KGV = txy $\therefore t \neq 0$
 $x \neq 0$
 $y \neq 0$

$$7xy + 2ty = 3tx$$

$$7xy - 3tx = -2ty$$

$$x(7y - 3t) = -2ty$$

$$x = \frac{-2ty}{7y - 3t}$$

met $7y - 3t \neq 0$

(f) $y = x^2 - 5$

$$y + 5 = x^2$$

$$x^2 = y + 5$$

$$x = \pm \sqrt{y + 5}$$

(2) Bereken die gelyktydige oplossing van die volgende pare vergelykings:

Gebruik die metode in hakies.

(a) $m - 2n - 1 = 0$ en $2m + n = 3$ (Substitusie)

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

Vervang ① in ②:

$\therefore 2(2n + 1) + n = 3$

$m = 2 \times \frac{1}{5} + 1$

$4n + 2 + n = 3$

$m = \frac{2}{5} + 1$

$5n = 3 - 2$

$m = 1\frac{2}{5}$

$5n = 1$

$\therefore \left(\frac{2}{5}; \frac{1}{5}\right)$

$n = \frac{1}{5}$

(b) $x - y = 3$ en $2x - y = 1$ (Eliminasie)

$x - y = 3$ --- ①

$-2x + y = 1$ --- ②

① - ②: $-x = 2$

$x = -2$

Vervang $x = -2$ in ①:

$-2 - y = 3$

$-2 - 3 = y$

$-5 = y$

$\therefore (-2; -5)$

(c) $\frac{3p}{8} + \frac{3q}{3} = \frac{15}{3}$ en $3p + 4q = 0$ (Substitusie)

$p + q = 5$ --- ① en $3p + 4q = 0$ --- ②

$p = 5 - q$ vervang $\rightarrow 3(5 - q) + 4q = 0$

$15 - 3q + 4q = 0$

$p = 5 - (-15)$

$q = -15$

$p = 5 + 15$

$p = 20$

$\therefore (20; -15)$

$$(d) 4t + 2k = 3 \quad \text{en} \quad 3t - 4k = 4$$

(Eliminatie)

$$4t + 2k = 3 \quad \dots \textcircled{1} \quad \text{en}$$

$$3t - 4k = 4 \quad \dots \textcircled{2}$$

$$\textcircled{1} \times 2: 8t + 4k = 6 \quad \dots \textcircled{3}$$

$$8t + 4k = 6 \quad \dots \textcircled{3}$$

$$\textcircled{2} + \textcircled{3}: 11t = 10$$

$$\text{Vervang } t = \frac{10}{11} \text{ in } \textcircled{1}:$$

$$t = \frac{10}{11}$$

$$4 \times \frac{10}{11} + 2k = 3$$

$$\frac{40}{11} + 2k = 3$$

$$40 + 22k = 33$$

$$22k = -7$$

$$k = -\frac{7}{22}$$

$$\therefore \left(-\frac{7}{22}; \frac{10}{11}\right)$$

$$(e) 2a - b - 5 = 0 \quad \text{en} \quad 7 - a + 2b = 0$$

$$2a - 5 = b \quad \dots \textcircled{1}$$

$$7 - a + 2b = 0 \quad \dots \textcircled{2}$$

vervang $\textcircled{1}$ in $\textcircled{2}$:

$$7 - a + 2(2a - 5) = 0$$

$$7 - a + 4a - 10 = 0$$

$$2a - 5 = b$$

$$-3 + 3a = 0$$

$$b = 2(1) - 5$$

$$3a = 3$$

$$b = 2 - 5$$

$$a = 1$$

$$b = -3$$

$$\therefore (1; -3)$$