

MK : Kalkulus Diferensial 2 , Tugas Kelompok
 Nama: Nandang Duryat - 312310233

Kelas : T1.23.C9

Solusi tugas kel. 1 (Hanif, Repri, Rizqot, Ikbai, Wtfhi, Maudy)

$$\begin{array}{r} \text{l. a. } 5x + 2y = 8 \quad | \quad 3 \\ 2x + y = 1 \quad | \quad 2 \end{array} \quad \begin{array}{r} 15x + 6y = 24 \\ -4x - 4y = -2 \\ \hline 11x = 22 \end{array}$$

$$\Rightarrow 2(2) + 3y = 1 \\ 4 + 3y = 1$$

$$3y = 1 - 4$$

$$3y = -3$$

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

$$H_p = (2, -1)$$

$$\begin{array}{r} \text{b. } 3x - 2y = 8 \quad | \quad 5 \\ 6x + 5y = 7 \quad | \quad 2 \end{array} \quad \begin{array}{r} 15x - 10y = 40 \\ + 12x + 10y = 14 \\ \hline 27x = 54 \end{array}$$

$$\Rightarrow 3x - 2y = 8 \quad x = \frac{54}{27} \\ 3(2) - 2y = 8 \quad 2y = 2$$

$$6 - 2y = 8 \quad x = 2 \\ 2y = 6 - 8 \quad H_p (2, 1) \\ 2y = -2$$

$$\begin{array}{r} \text{c. } 3x - y = 16 \quad | \quad 3 \\ 4x - 3y = 23 \quad | \quad 1 \end{array} \quad \begin{array}{r} 9x - 3y = 48 \\ -4x + 3y = 23 \\ \hline 5x = 25 \end{array}$$

$$\Rightarrow 3x - y = 16 \quad x = 5 \\ 3(5) - y = 16$$

$$15 - y = 16 \quad H_p (5, -1) \\ -y = 16 - 15 \\ -y = 1$$

$$y = -1$$

$$\begin{array}{r} \text{d. } 4x - 3y - 10 = 0 \quad | \quad 5 \\ 2x - 5y + 2 = 0 \quad | \quad 3 \end{array} \quad \begin{array}{r} 20x - 15y - 50 = 0 \\ + 6x - 15y + 6 = 0 \\ \hline 14x - 56 = 0 \end{array}$$

$$\Rightarrow 2x - 5y + 2 = 0 \quad 14x = 0 + 56$$

$$2(4) - 5y + 2 = 0 \quad 14x = 56$$

$$8 - 5y + 2 = 0$$

$$-5y = 0 - 8 - 2$$

$$-5y = -10$$

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

$$x = \frac{56}{14} = 4$$

$$H_p (4, 2)$$

② Dik - Ani: $4 \text{ Butu} + 3 \text{ pensil} = \text{Rp } 6.300$

Adi: $2 \text{ Pensil} + 5 \text{ Butu} = \text{Rp } 7.000$

$$\Rightarrow \text{Butu} = a$$

$$\text{Pensil} = b$$

$$\begin{array}{rcl} \rightarrow 4a + 3b & = 6.300 & | \times 2 \\ 8a + 6b & = 12.600 & \\ Sa + 2b & = 7.000 & | \times 3 \\ 5a + 6b & = 21.000 & \\ \hline -7a & = -8.400 & \end{array}$$

Substitusi nilai a

$$4a + 3b = 6.300$$

$$4(1.200) + 3b = 6.300$$

$$4.800 + 3b = 6.300$$

$$3b = 6.300 - 4.800$$

$$3b = 1.500$$

$$b = \frac{1.500}{3} = 500$$

$$a = \frac{8.400}{7} = 1.200$$

$$H_p: a : \text{harga butu} = 1.200$$

$$b : \text{harga Pensil} = 500$$

③ Rumus keliling persegi panjang = $k = 2p + 2l$

$$2p + 2l = 22 \text{ cm}$$

$$3(2p) + 2(2l) = 58 \text{ cm}$$

$$6p + 4l = 58 \text{ cm}$$

Dik = p dan l

④ $10a+b = 7(a+b) \rightarrow \text{persamaan (1)}$

$10b+a = (a+b)+18 \rightarrow \text{persamaan (2)}$

$$\rightarrow 10a+b = 7a+7b$$

$$3a = 6b$$

$$a = \frac{6b}{3} = 2b \text{ persamaan (3)}$$

Penyelesaian cara Eliminasi:

$$\rightarrow 6p + 4l = 58 \quad | \times 1 \quad 6p + 4l = 58$$

$$2p + 2l = 22 \quad | \times 2 \quad 4p + 4l = 44$$

$$2p = 14$$

$$p = \frac{14}{2} = 7$$

$$\rightarrow 10b+a = (a+b)+18$$

$$10b+a = a+b+18$$

$$9b = 18$$

$$b = \frac{18}{9} = 2$$

$$\rightarrow 2p + 2l = 22$$

$$H_p \rightarrow \text{Panjang} = 7 \text{ cm}$$

$$2(7) + 2l = 22$$

$$\rightarrow \text{Luas} = 4 \text{ cm}$$

$$14 + 2l = 22$$

$$2l = 22 - 14$$

$$2l = 8$$

$$l = \frac{8}{2} = 4$$

$$\rightarrow a = 2b$$

$$a = 2(2)$$

$$a = 4$$

$$H_p: (a=4, b=2)$$

Mk : Kalkulus Pertemuan 2 , Tugas kelompok
Nama: Nandang Duryat - 312310233

Kelas : 71.23.C9

Solusi tugas kelompok 2

Tentukan penyelesaian sistem

Persamaan Berikut :

$$\textcircled{1} \quad 2x + y + z = 12 \dots (1)$$

$$x + 2y - z = 3 \dots (2)$$

$$x + y - z = 6 \dots (3)$$

* Eliminasi persamaan 1 dan 2

$$2x + y + z = 12$$

$$x + 2y - z = 3 +$$

$$\underline{3x + 3y = 15} \dots (4)$$

* Substitusi dari persamaan 1 dan 5

$$3x + 3y = 15 \quad | \times 1 \quad | \quad 3x + 3y = 15 \quad (2)$$

$$3x + 2y = 18 \quad | \times -1 \quad | \quad -3x - 2y = -18 +$$

$$y = -3$$

$$2x + y + z = 12$$

$$x + y - z = 6 +$$

$$\underline{3x + 2y = 18} \dots (5)$$

* Nilai y ke persamaan 4

$$3x + 3y = 15$$

$$3x + 3(-3) = 15$$

$$x = \frac{5+9}{3} = \frac{24}{3} = 8$$

* nilai x, y, ke persamaan 1

$$2x + y + z = 12$$

$$z = 12 - 13$$

$$z = -1$$

Maka Hp nya adalah $(x, y, z) = (8, -3, -1)$

$$\textcircled{2} \quad x + y + z = 2 \dots (1)$$

$$3x - y + 2z = 4 \dots (2)$$

$$3x - y + z = 11 \dots (3)$$

* Eliminasi persamaan 1 dan 2

$$x + y + z = 2$$

$$3x - y + 2z = 4$$

$$\underline{4x + 3z = 6} \dots (4)$$

* Eliminasi persamaan 1 dan 3

$$x + y + z = 2$$

$$3x - y + z = 11$$

$$\underline{4x + 2z = 13} \dots (5)$$

* Eliminasi persamaan 4 dan 5

$$4x + 3z = 6$$

$$4x + 2z = 13 -$$

$$\underline{z = -7} \dots (6)$$

* Eliminasi persamaan 6 ke 4

$$4x + 3z = 6$$

$$4x + 3(-7) = 6$$

$$4x = 6 - 21$$

$$x = \frac{27}{4} \dots (7)$$

* Nilai z, x ke persamaan 1

$$x + y + z = 2$$

$$\frac{27}{4} + y + (-7) = 2$$

$$y = \frac{9 - 27}{4} = \frac{36 - 27}{4} = \frac{9}{4}$$

Maka Hp $(x, y, z) = \left(\frac{27}{4}, \frac{9}{4}, -7 \right)$

$$③ 3x - 4y + 4z = 17 \dots (1)$$

$$5x + y + 2z = 21 \dots (2)$$

$$2x + 2y + 3z = 9 \dots (3)$$

Eliminasi 1 dan 2

$$\begin{array}{l} 3x - 4y + 4z = 17 \\ 5x + y + 2z = 21 \\ \hline 5x + y + 2z = 21 \end{array} \times 9 \quad \begin{array}{l} 3x - 4y + 4z = 17 \\ 20x + 9y + 8z = 8y \\ \hline 23x + 12z = 101 \dots (4)$$

Eliminasi 1 dan 3

$$\begin{array}{l} 3x - 4y + 4z = 17 \\ 2x + 2y + 3z = 9 \\ \hline 2x + 2y + 3z = 9 \end{array} \times 2 \quad \begin{array}{l} 3x - 4y + 4z = 17 \\ 4x + 4y + 6z = 18 \\ \hline 7x + 10z = 35 \dots (5)$$

Eliminasi 4 dan 5 ke variable z

$$\begin{array}{l} 23x + 12z = 101 \\ 7x + 10z = 35 \\ \hline 23x + 12z = 101 \end{array} \times 5 \quad \begin{array}{l} 115x + 60z = 505 \\ 42x + 50z = 216 \\ \hline x = 295 \end{array}$$

Eliminasi 1 dan 5 ke variable x

$$\begin{array}{l} 23x + 12z = 101 \\ 7x + 10z = 35 \\ \hline 23x + 12z = 101 \end{array} \times 7 \quad \begin{array}{l} 161x + 84z = 707 \\ 161x + 140z = 805 \\ \hline 146z = 98 \\ z = \frac{98}{146} = \frac{49}{73} \end{array}$$

Eliminasi pers 1 dan 2

$$\begin{array}{l} 3x - 4y + 4z = 17 \\ 5x + y + 2z = 21 \\ \hline 5x + y + 2z = 21 \end{array} \times 5 \quad \begin{array}{l} 15x - 20y + 20z = 85 \\ 15x + 5y + 10z = 63 \\ \hline -25y + 10z = 22 \end{array}$$

Eliminasi persamaan 2 dan 3

$$\begin{array}{l} 2x + 2y + 3z = 9 \\ 5x + y + 2z = 21 \\ \hline 5x + y + 2z = 21 \end{array} \times 5 \quad \begin{array}{l} 10x + 10y + 15z = 45 \\ 10x + 2y + 4z = 42 \\ \hline 8y + 11z = 3 \end{array}$$

Eliminasi Variable z

$$\begin{array}{l} -23y + 19z = 22 \\ 8y + 11z = 3 \\ \hline 8y + 11z = 3 \end{array} \times 11 \quad \begin{array}{l} -253y + 159z = 242 \\ 8y + 11z = 42 \\ \hline 365y = 200 \end{array}$$

$$HP \left(\frac{295}{73}, \frac{-40}{73}, \frac{49}{73} \right)$$

$$y = \frac{200}{365} = -\frac{40}{73}$$

$$④ a + b + 2c = 3 \dots (1)$$

$$4a + 2b + c = 9 \dots (2)$$

$$2a + b - 2c = 2 \dots (3)$$

Dari persamaan 1 dan 2 Eliminasi

$$a + b + 2c = 3 \quad \times 4 \quad 4a + 4b + 8c = 12$$

$$4a + 2b + c = 9 \quad \times 1 \quad 4a + 2b + c = 9$$

$$2b + 7c = 3 \dots (4)$$

Dari persamaan 2 dan 3 Eliminasi

$$4a + 2b + c = 9 \quad \times 1 \quad 4a + 2b + c = 9$$

$$2a + b - 2c = 2 \quad \times 2 \quad 4a + 2b - 2c = 4$$

$$5c = 5$$

$$c = 1$$

Substitusi

$$2b + 7c = 3$$

* Substitusi

$$2b + 7(1) = 3$$

$$a + b + 2c = 3$$

$$2b = 3 - 7$$

$$a + (-2) + 2(1) = 3$$

$$b = \frac{-4}{2} = -2$$

$$a - 2 + 2 = 3$$

$$\text{HP}(3, -2, 1)$$

$$a = 3$$

$$⑤ u - 2v + w = 2 \dots (1)$$

$$3u + 4v + 2w = 6 \dots (2)$$

$$5u - 6v + w = 4 \dots (3)$$

dari persamaan 1 dan 2

$$u - 2v + w = 2 \quad | \times (-2) \quad -2u + 4v - 2w = -4$$

$$3u + 4v + 2w = 6 \quad | \times 1 \quad 3u + 4v + 2w = 6 \quad +$$

$$u + 8v = 2 \dots (4)$$

$$u - 2v + w = 2$$

$$\frac{2}{3} - 2\left(\frac{1}{6}\right) + w = 2$$

Dari persamaan 1 dan 3

$$u - 2v + w = 2 \quad | \times 1 \quad u - 2v + w = 2$$

$$5u - 6v + w = 4 \quad | \times -1 \quad -5u + 6v - w = -4 \quad +$$

$$-4u + 4v = -2 \dots (5)$$

$$\text{HP}(u, v, w) = \left(\frac{2}{3}, \frac{1}{6}, \frac{5}{3}\right)$$

Dari persamaan 4 dan 5

$$u + 8v = 2 \quad | \times 4 \quad 4u + 32v = 8$$

$$-4u + 4v = -2 \quad | \times 1 \quad -9u + 4v = -2 \quad +$$

$$36v = 6$$

$$v = \frac{1}{6}$$

Dari persamaan 5 x nilai v

$$-4u + 4v = -2$$

$$-4u = \frac{-6 - 2}{3}$$

$$-4u + 4\left(\frac{1}{6}\right) = -2$$

$$-4u = \frac{-8}{3}$$

$$-4u = -2 - \frac{2}{3}$$

$$u = \frac{2}{3}$$

$$⑥ p + q + r = 6 \dots (1)$$

$$3p - 2q - r = 11 \dots (2)$$

$$p + 2q + 3r = 11 \dots (3)$$

Persamaan 1 dan 2

$$\begin{array}{l} p + q + r = 6 \\ 3p - 2q - r = 11 \end{array} \left| \begin{array}{c} \times 3 \\ \times 1 \end{array} \right| \begin{array}{l} 3p + 3q + 3r = 18 \\ 3p - 2q - r = 11 \end{array}$$

$$5q + 4r = 7 \dots (4)$$

Persamaan 2 dan 3

$$\begin{array}{l} 3p - 2q - r = 11 \\ p + 2q + 3r = 11 \end{array} \left| \begin{array}{c} \times 1 \\ \times 3 \end{array} \right| \begin{array}{l} 3p - 2q - r = 11 \\ 3p + 6q + 9r = 33 \end{array} \quad - \\ 8q - 10r = -22 \dots (5)$$

Persamaan 4 dan 5

$$\begin{array}{l} 5q + 4r = 7 \\ -8q - 10r = -22 \end{array} \left| \begin{array}{c} \times 8 \\ \times 5 \end{array} \right| \begin{array}{l} 40q + 32r = 56 \\ -40q - 50r = -110 \end{array} \quad + \\ -18r = -54 \\ r = 3$$

Dari persamaan 4 ke 5

$$5q + 4r = 7$$

$$5q + 4(3) = 7$$

$$5q + 12 = 7$$

$$5q = 7 - 12$$

$$q = -1$$

Dari nilai r, q ke persamaan 1

$$p + q + r = 6$$

$$p + (-1) + 3 = 6$$

$$p = 6 - 3 + 1$$

$$p = 4$$

$$\text{Jp } (p, q; r) = (4, -1, 3)$$

Nama: Nandang Duryat - 312316233

Saianan tugas ker 3 (Roy, Rizky, Bagas Juna, Naila, M. Ridho, Haydity)
Sistem persamaan linear tiga variabel (6 - 10)

$$\textcircled{6} \quad p + q + r = 6$$

$$3p - 2q - r = 11$$

$$p + 2q + 3r = 11$$

$$\textcircled{*} \quad p + q + r = 6$$

$$\begin{array}{l} p + 2q + 3r = 11 \\ - \\ -q - 2r = -5 \end{array}$$

$$\begin{array}{l} 3p - 2q - r = 11 \\ | \times 1 \quad 3p - 2q - r = 11 \\ p - 6 + r = 6 \quad | \times 3 \quad \underline{3p + 3q + 3r = 18} \\ \hline -5q - 9r = -7 \end{array}$$

$$\begin{array}{l} -q - 2r = -5 \quad | \times 4 \quad -4q - 8r = -20 \\ -5q - 9r = -7 \quad | \times 2 \quad \underline{-10q - 18r = -14} \\ \hline 6q = -6 \quad | \div 6 \\ q = -1 \end{array}$$

$$\textcircled{*} \quad -q - 2r = -5$$

$$-(\textcircled{1}) - 2r = -5$$

$$1 - 2r = -5$$

$$-2r = -6 - 1$$

$$-2r = -6$$

$$r = \frac{-6}{-2} = 3$$

$$\textcircled{*} \quad p + q + r = 6$$

$$p + (-1) + 3 = 6$$

$$p = 6 + 1 - 3$$

$$p = 4 \quad \text{Jadi } p = 4, q = -1 \text{ dan } r = 3$$

$$\textcircled{7} \quad xyz \quad xy, 21 = 2 - 10 + 1$$

$$x + y + z = 12 \dots (\textcircled{1})$$

$$\frac{x+y}{z} = x \rightarrow 10x + y = 12 \rightarrow 10x + y - 4z = 0 \dots (\textcircled{2})$$

$$\frac{yz}{x} = 23 \rightarrow 10y + z = 23x \rightarrow -23x + 10y + z = 0 \dots (\textcircled{3})$$

* persamaan 2 dan 3

$$\begin{array}{l} \textcircled{2} \quad | \times 10 \quad 10x + 10y - 40z = 0 \\ \textcircled{3} \quad | \times 1 \quad -23x + 10y + z = 0 \\ \hline 123x - 41z = 0 \end{array}$$

$$123x - 41z = 0$$

$$3x - z = 0$$

$$3(2) = z$$

$$6 = z$$

* persamaan 1 dan 2

$$\textcircled{1} \quad x + y + z = 12$$

$$\textcircled{2} \quad 10x + y - 4z = 0$$

$$-9x + 5z = 12$$

$$-9x + 5(3x) = 12$$

$$-9x + 15x = 12$$

$$6x = 12$$

$$x = \frac{12}{6} \rightarrow 2$$

$$2 + y + 6 = 12$$

$$y + 8 = 12$$

$$y = 12 - 8 \rightarrow 4$$

(8) $(1/5 + 1/4 + 1/3)x = 49$

 $(12/60 + 15/60 + 20/60)x = 49$
 $47/60 x = 49$
 $x = \frac{49}{47} \times 60$
 $x = 62,6$ (pembulatan)

Jadi panjang masing-masing kain

 $\frac{1}{5} \times 62,6 = 12,52$
 $\frac{1}{4} \times 62,6 = 15,65$
 $\frac{1}{3} \times 62,6 = 20,86$

(9) $y = ax^2 + bx + c$
 titik = $(-1, 5), (1, -3)$ dan $(2, 2)$

* untuk $(-1, 5)$ * untuk $(1, -3)$ * untuk $(2, 2)$

 $y = ax^2 + bx + c$
 $5 = a(-1)^2 + b(-1) + c$
 $5 = a - b + c \dots ①$
 $-3 = a(1)^2 + b(1) + c$
 $-3 = a + b + c \dots ②$
 $2 = a(2)^2 + b(2) + c$
 $2 = 4a + 2b + c \dots ③$

* Eliminasi persamaan 1 dan 2

 $5 = a - b + c$
 $-3 = a + b + c \quad -$
 $8 = -2b$
 $8/-2 = b$
 $-9 = b$

* Eliminasi persamaan 1 dan 3

 $5 = a - b + c$
 $2 = 4a + 2b + c$
 $3 = -3a - 3b \dots ④$

* Subsitusi $b = -9$

 $3 = -3a - 3(-9)$
 $3 = -3a + 27$
 $3 = -3a - 12$

$15 = -3a$
 $15/-3 = a$
 $-5 = a$

Jadi, $y = ax^2 + bx + c$

 $y = -5x^2 + 4x + 19$

(10) Lingkaran $x^2 + y^2 + ax + by + c = 0$

titik = $(-1, 5), (-2, 4)$ dan $(5, -3)$

* untuk $(-1, 5)$ * untuk $(5, -3)$

 $(-1)^2 + (5)^2 + a(-1) + b(5) + c = 0$
 $1 + 25 - a + 5b + c = 0$
 $-a + 5b + c = -26 \dots ①$
 $(5)^2 + (-3)^2 + a(5) + b(-3) + c = 0$
 $25 + 9 + 5a - 3b + c = 0$
 $5a - 3b + c = -34 \dots ②$

* untuk $(-2, 4)$

$(-2)^2 + (4)^2 + a(-2) + b(4) + c = 0$
 $4 + 16 - 2a + 4b + c = 0$
 $-2a + 4b + c = -20 \dots ③$

* Eliminasi persamaan 1 dan 2

$$-a + 5b + c = -26$$

$$\underline{-2a + 9b + c = -20}$$

$$a + b = -6$$

$$a = -b - 6 \quad \dots \textcircled{1}$$

* Subtitusi pers. 4 ke 3

$$5(-b - 6) - 3b + c = -39$$

$$-5b - 30 - 3b + c = -39$$

$$-8b + c = -9 \quad \dots \textcircled{5}$$

* Subtitusi pers. 4 ke 1

$$-(-b - 6) + 5b + c = -26$$

$$b + 6 + 5b + c = -26$$

$$6b + c = -32 \quad \dots \textcircled{6}$$

* Eliminasi pers. 5 dan 6

$$-8b + c = -9$$

$$6b + c = -32$$

$$\underline{-14b = 23}$$

$$b = \frac{23}{-14} = -2$$

* Subtitusi b ke pers 4

$$a = -(-2) - 6$$

$$a = -9$$

* Subtitusi b ke pers 6

$$b(-2) + c = -32$$

$$-12 + c = -32$$

$$c = -32 + 12$$

$$c = -20$$

Jadi persamaan $x^2 + y^2 + ax + by + c = 0$
 $x^2 + y^2 - 4x - 2y - 20 = 0$

Solusi tugas kec 4

① $\begin{cases} y = 2x + 3 \\ y = x^2 \end{cases}$

Metode substitusi

$$x^2 = 2x + 3$$

~~x~~

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

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

$$x = 3 \quad x = -1$$

$$x = 3 \Rightarrow y = x^2$$

$$y = 3^2$$

$$y = 9$$

(3, 9)

$$x = -1 \Rightarrow y = x^2$$

$$y = (-1)^2$$

$$y = 1$$

(-1, 1)

$$HP = \{(-1, 1), (3, 9)\}$$

② $\begin{cases} y = x + 3 \\ y = x^2 - 5x + 8 \end{cases}$

Metode substitusi

$$x + 3 = x^2 - 5x + 8$$

$$0 = x^2 - 5x + 8 - x - 3$$

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

$$(x-5)(x-1) = 0$$

$$x = 5 \quad x = 1$$

$$\text{Untuk } x = 5$$

$$y = x + 3$$

$$y = 5 + 3$$

$$y = 8$$

(5, 8)

$$\text{Untuk } x = 1$$

$$y = x + 3$$

$$y = 1 + 3$$

$$y = 4$$

(1, 4)

$$HP = \{(5, 8), (1, 4)\}$$

③ $\begin{cases} x+y = 3 \\ y = x^2 - 4x + 3 \end{cases}$

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

$$x = 0$$

$$x = 3$$

$$y = 0^2 - 4 \times 0 + 3$$

$$y = 3^2 - 4 \times 3 + 3$$

$$y = 3$$

$$y = 0$$

$$HP = \begin{pmatrix} x_1, y_1 \\ x_2, y_2 \end{pmatrix} = \begin{pmatrix} 0, 3 \\ 3, 0 \end{pmatrix}$$

④ $\begin{cases} y = -2x + 1 \\ y = x^2 - 4x + 3 \end{cases}$

$$-2x + 1 = x^2 - 4x + 3$$

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

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

$$x = 2 \text{ atau } x = -2$$

$$HP = \begin{pmatrix} 2, 1 \\ -2, 1 \end{pmatrix}$$

$$\textcircled{5} \quad \begin{cases} y = x - 1 \\ 2xy + y^2 - 5y - 6 = 0 \end{cases}$$

$$\Rightarrow 2x \times (-1) + (x-1)^2 - 5(x-1) - 6 = 0$$

Sederhanakan

$$x = 0$$

$$x = 0$$

$$\begin{array}{l} y = 0 - 1 \\ y = 3 - 1 \end{array} \rightarrow \begin{array}{l} y = -1 \\ y = 2 \end{array}$$

Sederhanakan

$$\begin{cases} -1 = 0 - 1 \\ 2 \times 0 \times (-1) + (-1)^2 - 5 \times (-1) - 6 = 0 \end{cases}$$

$$\begin{cases} 2 = 3 - 1 \\ 2 \times 3 \times 2 + 2^2 - 5 \times 2 - 6 = 0 \end{cases}$$

$$HP \left(\begin{matrix} x_1, y_1 \\ x_2, y_2 \end{matrix} \right) = \left(\begin{matrix} 0, -1 \\ 3, 2 \end{matrix} \right)$$

$$\textcircled{6} \quad \begin{cases} 3x - y - 16 = 0 \\ x^2 + y^2 - 6x + 4y - 12 = 0 \end{cases}$$

$$\Rightarrow \begin{cases} y = 3x - 16 \\ x^2 + y^2 - 6x + 4y - 12 = 0 \end{cases}$$

$$x^2 + (3x - 16)^2 - 6x + 4(3x - 16) - 12 = 0$$

$$x = 3$$

$$x = 6$$

$$\begin{array}{l} y = 3 \times 3 - 16 \\ y = 3 \times 6 - 16 \end{array}$$

$$HP \left\{ \begin{array}{l} x_1, y_1 \\ x_2, y_2 \end{array} \right\} = \left(\begin{array}{l} 3, 1 \\ 6, 2 \end{array} \right)$$

$$y = -7$$

$$y = 2$$

Saujanan Kel 5

$$\textcircled{1} \quad y = x^2 - 1$$

$$y = 1 - x^2$$

subs per 2 ke pers. 1 untuk $x = 2$

$$1 - x^2 = x^2 - 1$$

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

$$x = 2$$

$$x = 2 \quad x = -2$$

$$y = x^2 - 1$$

$$= 2^2 - 1$$

$$= 4 - 1$$

$$= 3$$

$$(2, 3)$$

$$x = -2$$

$$y = x^2 - 1$$

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

$$= 4 - 1$$

$$= -5$$

$$(-2, -5)$$

Jadi,

$$\text{HP } \{(2, 3), (-2, 3)\}$$

$$\textcircled{2} \quad y = -x^2 + x$$

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

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

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

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

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

$$x - 1 = 0 \quad 2x - 2 = 0 = 1$$

$$x = 1 \quad x = \frac{2}{2} = 1$$

* Nilai x ?

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

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

$$= 1 - 3 + 2$$

$$= 0$$

$$\text{HP } \{(1, 0)\}$$

$$\textcircled{3} \quad y = -x^2 + x$$

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

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

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

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

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

$$x - 1 = 0$$

$$2x - 2 = 0$$

$$x = 2$$

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

Nilai x ?

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

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

$$= 1 - 3 + 2$$

$$= 0$$

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

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

$$= 4 - 6 + 2$$

$$= 0$$

$$\text{HP } \{(1, 0)\}, \{(2, 0)\}$$

=

$$\textcircled{1} \quad y = 2x^2 - 6x$$

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

Sub persamaan ke 1 pers. ke 2

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

* untuk $y = 2$

$$x = 3$$

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

$$y = 2x^2 - 6x$$

$$y = 2x^2 - 6x$$

$$-x^2 + 2x + 6 = 0 : (-)$$

$$= 2(2)^2 - 6(2)$$

$$= 2(3)^2 - 6(3)$$

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

$$= 4^2 - 12$$

$$= 6^2 - 18$$

$$(x-2)(x-3)$$

$$= 8 - 12$$

$$= 36 - 18$$

$$(x-2)x-3)$$

$$= 9$$

$$= 18$$

$$x - 2 = 0 \quad x - 3 = 0$$

$$(3, 4)$$

$$(2, 18)$$

$$x = 2$$

$$x = 3$$

$$\text{Hp } \{3, 4\}, \{2, 18\}$$

$$\textcircled{2} \quad y = x^2 - 2x + 3$$

$$y = -x^2 - x + 2$$

subs ke 1 ke sub ke 2

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

untuk $x = 2$

$$x = 1$$

$$x^2 + x^2 - 2x + x + 3 - 2$$

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

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

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

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

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

$$\underline{x^2 - x + 1 = 0}$$

$$= 4 - 4 + 3$$

$$= 1 + 3$$

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

$$= 3$$

$$= 3$$

$$x+2=0$$

$$x-1=0$$

$$\{2, 3\}$$

$$\{1, 3\}$$

$$x = 2$$

$$x = 1$$

$$\text{jadi Hp } \{2, 3\}, \{1, 3\}$$

Soal pemahaman

\textcircled{1} diketahui sistem persamaan linear $ax + 3y = 2$ dan $9x + 12y = 3$

tentukan nilai a agar sistem persamaan linear itu tidak mempunyai anggota dalam himpunan penyelesaiannya?

Jawab: $ax + 3y = 2$ gradiennya $-a/3$

$9x + 12y = 3$ gradiennya $-9/12 = -1/3$

jadi

$$-a/3 = -1/3$$

$$-a = -1$$

$$a = 1$$

Maka nilai $a = 1$

\textcircled{2} Diketahui P, q, r adalah himpunan penyelesaian dari

$$2x + 3y = 5$$

$$*x + 3y = 4$$

Jika diketahui $P + q = 8$ dan $P + 3q = 2$ maka

tentukan nilai a ?

Jawab: $P + a = 8 (x3) \quad 3P + 3a = 24$

$$P + 3q = 2 \quad (x3) \quad P + 3q = 2$$

$$2P = 22$$

$$P = 11$$

$$p + q = 8$$

$$11 + q = 8$$

$$q = 8 - 11$$

$$q = 3$$

Nilai a ?

$$a = x + 3q = p + 3q$$

$$= p + 3q = 2$$

$$= 11 + 3(3) - 2$$

$$= 11 + 9 - 2$$

$$= 18$$

Maka nilai $a = 18$ //

Salinan Kel 6

Penyeputan sistem persamaan linear dan tiga variabel

$$\textcircled{1} \quad \text{Diket } H_1 = 10 \text{ tikel} \quad 1 \text{ bundel Tibet} = x \text{ lembar}$$

$$H_2 = \frac{1}{2} (x-10)$$

$$H_3 = 5 \text{ Tibet}$$

$$Serta = 2 \text{ Tibet}$$

Tentukan 1 bundel Tibet

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

$$x = 10 + \frac{1}{2} - 5 + 5 + 2$$

$$x - \frac{1}{2} x = 10 + 2$$

$$x - \frac{1}{2} x = 12$$

$$\frac{1}{2} x = 12 = 24$$

$$1 \text{ Bundel Tibet Sebanyak} = 24 //$$

$$\textcircled{2} \quad \text{Umur ayah Selanjutnya} = x$$

$$\text{Umur adik Selanjutnya} = y$$

$$\text{Diket } = x - 7 = 6(y-7)$$

$$x - 7 = 6y - 42$$

$$x - 6y = -35$$

$$2(x+y) = 5(y+4) + 9$$

$$2x + 2y = 5y + 20 + 9$$

$$2x - 5y = 29$$

$$\begin{array}{l} \text{Maka} = x - 6y = -35 \\ \quad 2x - 5y = 29 \end{array} \left| \begin{array}{l} x-5 - 5x + 30y = 175 \\ x-6 - 2x + 30y = -126 \\ \hline 7x = 301 \end{array} \right.$$

$$x = 43$$

Maka umur ayah Selanjutnya

$$\text{adalah} = 43 //$$

$$\textcircled{3} \quad \text{Diket. kakak} = x$$

$$\text{adik} = y$$

$$\frac{4=6}{x-10} = \frac{2}{3}$$

$$3y - 30 = 2x - 20$$

$$3y - 2x = 10$$

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

$$5y = 4x$$

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

$$3y - 2x = 10$$

$$\frac{3y - 2.5y}{4} = 10$$

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

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

$$x = \frac{5 \cdot 20}{4}$$

$$6y - 5y = 20$$

$$y = 20$$

$$x = 25$$

* sejumlah tahun yg akan datang

$$\text{adik : kakak} = 20 + 10 : 25 + 10$$

$$30 : 35 = 6 : 7$$

(15)

④ Diket : A = $80x + 20y = 2960$ x = daging

B = $70x + 40y = 3090$ y = ikan

Tentukan harga ikan pada toko A dan B

$$80x + 20y = 2960$$

$$80 \cdot 32 + 20y = 2960$$

$$2560 + 20y = 2960$$

$$20y = 2960 - 2560$$

$$20y = 400$$

$$y = 20$$

Jadi harga ikan pada kedua toko = 20000

⑤ Diket Angus = $4L + 2B = 74000$ L = lembar

bardi = $2L + 3B = 55000$ B = hari bardi

Mit $5L = \dots ?$

$$4L + 2B = 74000$$

$$2L + 3B = 55000$$

$$\times 3$$

$$\times 2$$

$$12L + 6B = 222000$$

$$4L + 3B = 110000$$

$$8L = 112000$$

$$L = 14000$$

$$5L = 5 \cdot 14000$$

$$= 70000$$