



Jawapan

Bab 3

1. (a) $y = 3x - 32$ (b) $p = 2g + 3h - 5$

2.

Perkara rumus
Subject of formula

$$I = \pi j^2 t \quad \text{seperti as} \quad F = ma \quad \text{seperti as} \quad f = \frac{vu}{u+v}$$

Faktor
penghubung
Relating factor

$$\boxed{I} \quad \boxed{F} \quad \boxed{f}$$

3. (a) $m = 2n + 5$

[n]

$$\begin{aligned} 2n + 5 &= m \\ 2n + 5 - 5 &= m - 5 \\ 2n &= m - 5 \\ 2n \div 2 &= (m - 5) \div 2 \\ n &= \frac{m - 5}{2} \end{aligned}$$

(b) $ab = x^2 - b$

[b]

$$\begin{aligned} ab + b &= x^2 - b + b \\ ab + b &= x^2 \\ b(a + 1) &= x^2 \\ b(a + 1) \times \frac{1}{a + 1} &= x^2 \times \frac{1}{a + 1} \\ b &= \frac{x^2}{a + 1} \end{aligned}$$

(c) $3k = \frac{h}{2} + \frac{j}{3}$

[j]

$$\begin{aligned} \frac{h}{2} + \frac{j}{3} &= 3k \\ \frac{3h + 2j}{2 \times 3} &= 3k \\ \frac{3h + 2j}{6} \times 6 &= 3k \times 6 \\ 3h + 2j &= 18k \\ 3h + 2j - 3h &= 18k - 3h \\ 2j &= 18k - 3h \\ 2j \div 2 &= (18k - 3h) \div 2 \\ j &= \frac{18k - 3h}{2} \\ j &= 9k - \frac{3h}{2} \end{aligned}$$

(d) $T = \frac{2 + 3r}{r}$

[r]

$$\begin{aligned} T \times r &= \frac{2 + 3r}{r} \times r \\ Tr - 3r &= 2 + 3r - 3r \\ r(T - 3) \times \frac{1}{T - 3} &= 2 \times \frac{1}{T - 3} \\ r &= \frac{2}{T - 3} \end{aligned}$$

(e) $\frac{5(x - 3y)}{2x} = y$

[y]

$$\begin{aligned} \frac{5(x - 3y)}{2x} \times 2x &= y \times 2x \\ 5x - 15y &= 2xy \\ 2xy + 15y &= 5x \\ y(2x + 15) \times \frac{1}{2x + 15} &= 5x \times \frac{1}{2x + 15} \\ y &= \frac{5x}{2x + 15} \end{aligned}$$

(f) $4cd = \frac{3}{d}$

[d]

$$\begin{aligned} 4cd \times d &= \frac{3}{d} \times d \\ 4cd^2 &= 3 \\ 4cd \div 4c &= 3 \div 4c \\ \sqrt{d^2} &= \sqrt{\frac{3}{4c}} \\ d &= \sqrt{\frac{3}{4c}} \end{aligned}$$

4. (a) $p = rq^2 + 2sq^2$

[q]

$$\begin{aligned} rq^2 + 2sq^2 &= p \\ q^2(r + 2s) &= p \\ q^2(r + 2s) \times \frac{1}{r + 2s} &= p \times \frac{1}{r + 2s} \\ q^2 &= \frac{p}{r + 2s} \\ \sqrt{q^2} &= \sqrt{\frac{p}{r + 2s}} \\ q &= \sqrt{\frac{p}{r + 2s}} \end{aligned}$$

(b) $x = 5\sqrt{\frac{k}{y}}$

[y]

$$\begin{aligned} \left(5\sqrt{\frac{k}{y}}\right)^2 &= x^2 \\ \frac{25k}{y} &= x^2 \\ \frac{25k}{y} \times \frac{1}{25k} &= x^2 \times \frac{1}{25k} \\ \frac{1}{y} &= \frac{x^2}{25k} \\ y &= \frac{25k}{x^2} \end{aligned}$$

(c) $V = \frac{1}{3}s^2h$

$$\frac{1}{3}s^2h = V$$

$$\frac{1}{3}s^2h \times \frac{3}{h} = V \times \frac{3}{h}$$

$$\sqrt{s^2} = \sqrt{\frac{3V}{h}}$$

$$s = \sqrt{\frac{3V}{h}}$$

(d) $V = \frac{4}{3}\pi r^3$

$$\frac{4}{3}\pi r^3 = V$$

$$\frac{4}{3}\pi r^3 \times \frac{3}{4\pi} = V \times \frac{3}{4\pi}$$

$$r^3 = \frac{3V}{4\pi}$$

$$\sqrt[3]{r^3} = \sqrt[3]{\frac{3V}{4\pi}}$$

$$r = \sqrt[3]{\frac{3V}{4\pi}}$$

(e) $e = \sqrt{\frac{1}{f}}$

$$\sqrt{\frac{1}{f}} = e$$

$$\left(\sqrt{\frac{1}{f}}\right)^2 = e^2$$

$$\frac{1}{f} = e^2$$

$$f = \frac{1}{e^2}$$

(f) $p^2 = h^2 - 9$

$$h^2 - 9 = p^2$$

$$h^2 - 9 + 9 = p^2 + 9$$

$$h^2 = p^2 + 9$$

$$\sqrt{h^2} = \sqrt{p^2 + 9}$$

$$h = \sqrt{p^2 + 9}$$

5. (a) $k = \sqrt{y - 3h}$
 $= \sqrt{4 - 3(-7)}$

[s]

$$\begin{aligned} &= \sqrt{4 + 21} \\ &= \sqrt{25} \\ &= 5 \end{aligned}$$

(b) $x = \frac{3(2 - y^2)}{z}$
 $= \frac{3[2 - (-2)^2]}{-8}$
 $= \frac{3(-2)}{-8}$
 $= \frac{6}{8}$
 $= \frac{3}{4}$

[r]

(c) $\frac{1}{h} + \frac{1}{k} = \frac{1}{m}$
 $\frac{1}{2} + \frac{1}{k} = \frac{1}{3}$
 $\frac{1}{k} = \frac{1}{3} - \frac{1}{2}$
 $\frac{1}{k} = -\frac{1}{6}$
 $k = -6$

(d) $\frac{4 + p}{5q} = t$
 $\frac{4 + p}{5(-2)} = -1$
 $4 + p = -1(-10)$
 $= 10$
 $p = 10 - 4$
 $= 6$

[f]

(e) $x = y^2\sqrt{z}$
 $64 = 2^2\sqrt{z}$
 $4\sqrt{z} = 64$
 $\sqrt{z} = \frac{64}{4}$
 $= 16$
 $z = 16^2$
 $= 256$

[h]

6. (a) Keuntungan = Hasil jualan – Jumlah kos
 $Profit = Total\ sales - Total\ cost$
 $p = (4x + 5y) - (2.5x + 3y)$
 $= 4x + 5y - 2.5x - 3y$
 $= 1.5x + 2y$

ALTERNATIF

KAEDAH
 $p = (4 - 2.5)x + (5 - 3)y$
 $= 1.5x + 2y$

(b) (i) $T = k + (k - 9)$
 $= 2k - 9$



$$\begin{aligned} \text{(ii)} \quad T &= 2k - 9 \\ 37 &= 2k - 9 \\ 2k &= 37 + 9 \\ &= 46 \\ k &= 23 \end{aligned}$$

$$\begin{aligned} \text{(c) (i)} \quad \frac{QR}{PR} &= \frac{2}{3} \\ QR &= \frac{2}{3}PR \\ &= \frac{2}{3}y \\ L &= \text{Luas } PRTU - \text{Luas } QRS \\ &= \text{Area of } PRTU - \text{Area of } QRS \\ &= xy - \frac{1}{2} \left(\frac{2y}{3} \right) \left(\frac{x}{2} \right) \\ &= xy - \frac{xy}{6} \\ &= \frac{5}{6}xy \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad L &= \frac{5}{6}xy \\ 20 &= \frac{5}{6}(3)y \\ 20 &= \frac{5}{2}y \\ y &= \frac{2 \times 20}{5} \\ &= 8 \end{aligned}$$

$$\begin{aligned} \text{(d) (i)} \quad &\text{Jumlah bayaran} \\ &= \text{Bayaran 5 jam pertama} + \text{Bayaran} \\ &\quad \text{baki jam seterusnya} \\ &\text{Total payment} \\ &= \text{Payment for the first 5 hours} + \text{Payment for the} \\ &\quad \text{remaining hours} \\ K &= 22 \times 5 + 18(n - 5) \\ &= 110 + 18(n - 5) \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad K &= 110 + 18(n - 5) \\ &= 110 + 18(9 - 5) \\ &= 110 + 18(4) \\ &= 182 \end{aligned}$$

Maka, jumlah bayaran sewa kereta ialah RM182.

Thus, the total payment of the car rental is RM182.

$$\begin{aligned} \text{(e) (i)} \quad &\text{Katakan nombor ganjil yang pertama} = n \\ &\text{Let the first odd number} = n \\ &\text{Tiga markah itu:} \\ &\text{The three marks:} \\ &n, n + 2, n + 4 \\ J &= n + (n + 2) + (n + 4) \\ J &= 3n + 6 \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad &\text{Julat / Range} \leftarrow \begin{array}{l} \text{Julat} = \text{Markah tertinggi} \\ \quad - \text{Markah terendah} \\ \text{Range} = \text{Highest mark} - \text{Lowest mark} \end{array} \\ &= (n + 4) - n \\ &= 4 \end{aligned}$$

$$\begin{aligned} \text{(iii)} \quad &\text{Apabila / When} \\ n + 4 &= 89 \\ n &= 85 \\ J &= 3(85) + 6 \\ &= 261 \end{aligned}$$

Praktis Masteri 3

BAHAGIAN A

$$\begin{aligned} 1. \quad fg &= \frac{h^2}{36} \\ \frac{h^2}{36} &= fg \\ h^2 &= 36fg \\ h &= \sqrt{36fg} \\ h &= 6\sqrt{fg} \end{aligned}$$

Jawapan / Answer: C

$$\begin{aligned} 2. \quad ab^2c &= 2a^2 + 5c \\ -5 \times (7)^2 \times c &= 2(-5)^2 + 5c \\ -245c &= 50 + 5c \\ 250c &= -50 \\ c &= -\frac{1}{5} \end{aligned}$$

Jawapan / Answer: B

$$\begin{aligned} 3. \quad C &= \frac{1}{4}\pi v^2 u \\ &= \frac{1}{4} \times \pi \times 10^2 \times 12 \\ &= 300\pi \end{aligned}$$

Jawapan / Answer: C

BAHAGIAN B

$$\begin{aligned} 4. \quad \text{(i)} \quad 7 + q &= 5p - 2q \\ 5p &= 27 + q + 2q \\ p &= \frac{27 + 3q}{5} \\ \text{(ii)} \quad \frac{2q}{7p} &= \frac{24q^2}{5} \\ 168pq^2 &= 10q \\ p &= \frac{5}{84q} \end{aligned}$$

$$\begin{aligned} 5. \quad \text{(b)} \quad &\begin{array}{cc} \sqrt{16 + 8g + g^2} = 3 + h & g = \frac{5k}{h(3 - h)} \\ \frac{5k}{h} = 3g - hg & g = h - 1 \end{array} \end{aligned}$$

$$\begin{aligned}\sqrt{16+8g+g^2} &= 3+h \\ \sqrt{(g+4)^2} &= 3+h \\ g+4 &= 3+h \\ g &= h-1\end{aligned}$$

$$\begin{aligned}\frac{5k}{h} &= 3g - hg \\ 5k &= 3gh - gh^2 \\ 5k &= gh(3-h) \\ g &= \frac{5k}{h(3-h)}\end{aligned}$$

(b) (i) ✓

$$\begin{aligned}xy - 2z &= 7x \\ xy - 7x &= 2z \\ x(y-7) &= 2z \\ x &= \frac{2z}{y-7}\end{aligned}$$

(ii) ✗

$$\begin{aligned}xy - 2z &= 7x \\ 2z &= xy - 7x \\ z &= \frac{xy-7x}{2}\end{aligned}$$

6. (a) (i) c
(ii) T

(b) (i) ✗

$$\begin{aligned}\frac{(m+n)^2}{5} &= \sqrt{pq} \\ \frac{(1+2)^2}{5} &= \sqrt{9q} \\ \frac{9}{5} &= 3\sqrt{q} \\ \sqrt{q} &= \frac{3}{5} \\ q &= 0.36\end{aligned}$$

(ii) ✓

$$\begin{aligned}\frac{(m+n)^2}{5} &= \sqrt{pq} \\ \frac{(3+7)^2}{5} &= \sqrt{p} \\ \sqrt{p} &= \frac{100}{5} \\ \sqrt{p} &= 20 \\ p &= 400\end{aligned}$$

BAHAGIAN C

7. (a) $\sqrt{\frac{7-m}{2n}} = p$

$$\begin{aligned}\frac{7-m}{2n} &= p^2 \\ 7-m &= 2np^2 \\ -m &= 2np^2 - 7 \\ m &= 7 - 2np^2\end{aligned}$$

(b) (i) $6(3x) + 2(5y) = 92$
 $18x + 10y = 92$

(ii) $18(4) + 10y = 92$
 $72 + 10y = 92$
 $10y = 92 - 72$
 $10y = 20$
 $y = 2$

Bilangan coklat A
The number of chocolates A
 $= 3(4) = 12$ keping / pieces
Bilangan coklat B
The number of chocolates B
 $= 5(2) = 10$ keping / pieces

(c) (i) $p = 2(q + q + 2.5)$
 $p = 2(2q + 2.5)$
 $p = 4q + 5$

(ii) $89 = 4q + 5$
 $4q = 89 - 5$
 $4q = 84$
 $q = 21$

Luas / Area $= 21 \times (21 + 2.5)$
 $= 21 \times 23.5$
 $= 493.5 \text{ m}^2$

Fokus KBAT

(a) $J = s + 2s$ atau / or $J = 3s$ atau / or
 $J = k + \frac{1}{2}k$ atau / or $J = \frac{3}{2}k$

(b) $J = \frac{3}{2}K$
 $= \frac{3}{2}(40) = 60$

(c) Bilangan bola sepak / Number of soccer balls
 $J = 3s$
 $90 = 3s$
 $s = 30$

Bilangan bola pingpong / Number of ping pong balls
 $= 30 \times 2 = 60$

Bilangan bakul yang diperlukan untuk menyimpan
30 biji bola sepak
The number of baskets needed to keep 30 soccer balls
 $= \frac{30}{10} = 3$

Bilangan bakul yang diperlukan untuk menyimpan
60 biji bola pingpong
The number of baskets needed to keep 60 ping pong balls
 $= \frac{60}{25} = 2.4 \approx 3$

Maka, bilangan bakul yang diperlukan untuk
menyimpan kesemua bola ialah 3.
Therefore, the number of baskets needed to keep all balls is 3.