Jawapan

Bab 4

1. (a) 0.5 m : 9 cm : 60 mm
$= 0.5 \times 1\,000 : 9 \times 10 : 60$
$= 50 : 9 : 6$

(b) 440 g : 2 kg : 600 g
$= 440 : 2 \times 1\,000 : 600$
$= 22 : 100 : 30$

2. (a) ✓ (b) ✗
(c) ✓ (d) ✗

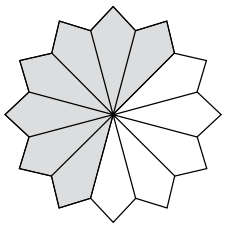
3. (a) 5.6 : 0.8
$= 5.6 \times 10 : 0.8 \times 10$
$= 56 : 8$
$= 7 : 1$

(b) $\frac{30}{75} : \frac{9}{12} = \frac{2}{5} : \frac{3}{4}$
$= \frac{2}{5} \times 20 : \frac{3}{4} \times 20$
$= 8 : 15$

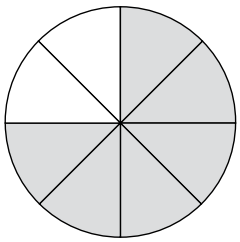
(c) 12 : 15 : 21
$= 12 \div 3 : 15 \div 3 : 21 \div 3$
$= 4 : 5 : 7$

(d) 0.8 : 6.4 : 8
$= 0.8 \times 10 : 6.4 \times 10 : 8 \times 10$
$= 8 : 64 : 80$
$= 1 : 8 : 10$

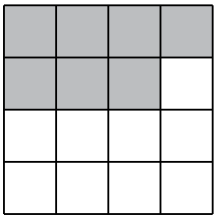
4. (a)



(b)



(c)



5. (a) 900 m : 2.7 km
$= 900 \div 1\,000$ km : 2.7 km
$= 0.9 : 2.7$
$= 0.9 \div 0.9 : 2.7 \div 0.9$
$= 1 : 3$

atau / *or*

900 m : 2.7 km $= 900$ m $: 2\,700$ m
$= \frac{900}{900} : \frac{2\,700}{900}$
$= 1 : 3$

(b) Nisbah bilangan lembu kepada 32 ekor kambing adalah setara dengan nisbah 5 : 8.
The ratio of the number of cows to 32 goats is equivalent to the ratio 5 : 8.

Bilangan lembu : bilangan kambing
Number of cows : number of goats
$= 5 \times 4 : 8 \times 4$
$= 20 : 32$
Maka, terdapat 20 ekor lembu.
Hence, there are 20 cows.

6. (a) FSTB bagi 126, 63 dan 168 ialah 21.
HCF of 126, 63 and 168 is 21.
$= \frac{126}{21} : \frac{63}{21} : \frac{168}{21}$
$= 6 : 3 : 8$

(b) 25 : 150 : 250
FSTB bagi 25, 150 dan 250 ialah 25.
HCF of 25, 150 and 250 is 25.
$= \frac{25}{25} : \frac{150}{25} : \frac{250}{25}$
$= 1 : 6 : 10$

7. (a) Kadar / *Rate* $= \frac{880 \text{ g}}{4 \text{ tin / } cans}$
$= 220$ g/tin *(g/can)*

(b) Kadar / *Rate* $= \frac{\text{RM}18}{10}$
$=$ RM1.80/batang (*pen*)

(c) Kadar / *Rate* $= \frac{455 \text{ biji / } eggs}{7}$
$= 65$ biji / bakul *(eggs/basket)*

8. $3\ 200\ kg/m^3 \rightarrow \frac{3\ 200 \times 1\ 000}{100^3} \rightarrow \frac{3\ 200\ 000}{1\ 000\ 000} \rightarrow 3.2\ g/cm^3$

9. (a) 10 m/s

$= \frac{10\ m}{1\ s}$

$= \frac{10}{1\ 000}\ km \div (1 \div 60 \div 60)\ j/h$

$= \frac{0.01\ km}{1 \div 3\ 600\ j/h}$

$= 36\ km/j$

36 km/h

(b) $0.1\ g/cm^3$

$= \frac{0.1\ g}{1\ cm^3}$

$= \frac{0.1\ g}{1\ 000} \div \frac{1}{100 \times 100 \times 100}\ m^3$

$= \frac{0.0001\ kg}{1 \times 10^{-6}\ m^3}$

$= 100\ kg/m^3$

(c) 1 000 m*l*/min

$= \frac{1\ 000\ ml}{60\ min}$

$= \frac{1\ 000}{1\ 000}\ l \div \frac{1}{60}\ j/h$

$= \frac{1\ l}{1 \div 60\ j/h}$

$= 60\ l/j$

60 *l*/h

(d) 45 sen/s

$= \frac{45\ sen}{1\ s}$

$= RM\frac{45}{100} \div \frac{1}{60}\ min$

$= \frac{RM0.45}{1 \div 60\ min}$

$= RM27/min$

10. (a) Kelajuan Syahir

Speed of Syahir

$= \frac{2\ 000\ m}{5\ min}$

$= \frac{2\ 000 \div 1\ 000\ km}{5\ min}$

$= \frac{2\ km}{5\ min}$

$= 0.4\ km/min$

(b) Ketumpatan bongkah logam

Density of the metal

$= \frac{1.2\ g}{1\ cm^3}$

$= \frac{1.2 \div 1\ 000\ kg}{1 \div 100^3\ m^3}$

$= 1\ 200\ kg/m^3$

(c) Harga ayam

The price of chicken

$= \frac{RM5.90}{1\ kg}$

$= \frac{5.90 \times 100\ sen}{1 \times 1\ 000\ g}$

$= \frac{590\ sen}{1\ 000\ g}$

$= 0.59\ sen/g$

11. (a) $\frac{RM70}{5\ ekor} = \frac{RM112}{8\ ekor}$

$\frac{RM70}{5\ chickens} = \frac{RM112}{8\ chickens}$

(b) $\frac{8\ kg}{4\ biji} = \frac{20\ kg}{10\ biji}$

$\frac{8\ kg}{4\ watermelons} = \frac{20\ kg}{10\ watermelons}$

(c) $\frac{972\ N}{4\ m^2} = \frac{1\ 215\ N}{5\ m^2}$

(d) $\frac{2.4\ m}{4\ helai} = \frac{4.2\ m}{7\ helai}$

$\frac{2.4\ m}{4\ T\text{-}shirts} = \frac{4.2\ m}{7\ T\text{-}shirts}$

12. (a)

Kaedah unitari *Unitary method*	Masa yang diambil untuk menanda 25 helai kertas peperiksaan *Time taken to mark 25 scripts of exam paper* = 120 minit/*minutes* Masa yang diambil untuk menanda sehelai kertas peperiksaan *Time taken to mark a script of exam paper* = 120 minit/*minutes* ÷ 25 = 4.8 minit/*minutes* Masa yang diambil untuk menanda 120 helai kertas peperiksaan (dalam jam) *Time taken to mark 120 scripts of exam paper (in hours)* = (4.8 minit/*minutes* ÷ 60) × 120 = 9.6 jam/*hours*
Kaedah kadaran *Proportion method*	Katakan x ialah masa, dalam jam, yang diambil untuk menanda 120 helai kertas peperiksaan. *Let x be the time taken, in hours, to mark 120 scripts of exam paper.* 120 minit/ *minutes* ÷ 60 = 2 jam/ *hours* $\frac{2}{25} \overset{\times 4.8}{=} \frac{x}{120}$ $\times 4.8$ $x = 2 \times 4.8$ $= 9.6$ jam/*hours*
Kaedah darab silang *Cross multiplication method*	120 minit / *minutes* ÷ 60 = 2 jam / *hours* $\frac{25 \text{ helai/ } scripts}{2 \text{ jam/ } hours} \times \frac{120 \text{ helai/ } scripts}{x}$ $25x = 120 \times 2$ $x = \frac{120 \times 2}{25}$ $= 9.6$ jam/*hours*

(b)

Kaedah unitari *Unitary method*	Harga bagi 10 batang pen *Price of 10 pens* = RM26 Harga bagi sebatang pen *Price of a pen* = RM26 ÷ 10 = RM2.60 Harga bagi sedozen pen *Price of a dozen of pens* = RM2.60 × 12 = RM31.20
Kaedah kadaran *Proportion method*	Katakan x ialah harga bagi sedozen pen. *Let x be the price of a dozen of pens.* $\frac{RM26}{10} \overset{\times 1.2}{=} \frac{x}{12}$ $\times 1.2$ $x = RM26 \times 1.2$ $= RM31.20$
Kaedah darab silang *Cross multiplication method*	$\frac{RM26}{10} \times \frac{x}{12}$ $10x = RM26 \times 12$ $x = \frac{RM26 \times 12}{10}$ $x = RM31.20$

13. Aktiviti PAK-21

14.

	a	*b*	*c*	*a* : *b* : *c*
(a)	6 × 4 = 24	5 × 4 = 20		24 : 20 : 15
		4 × 5 = 20	3 × 5 = 15	
(b)	8 × 2 = 16	9 × 2 = 18		16 : 18 : 45
		2 × 9 = 18	5 × 9 = 45	
(c)	11 × 2 = 22	12 × 2 = 24		22 : 24 : 45
		8 × 3 = 24	15 × 3 = 45	

15.

Damia	Batrisya	Huda
4 × 2 = 8	3 × 2 = 6	
	6	7

Bilangan kek dijual oleh Damia : bilangan kek dijual oleh Batrisya : bilangan kek dijual oleh Huda

Number of cakes sold by Damia : *Number of cakes sold by Batrisya* : *Number of cakes sold by Huda*

= 8 : 6 : 7

16. (a) 4 bahagian / *parts* = 2.4 kg

1 bahagian / *part* $= \frac{2.4}{4}$

$= 0.6$ kg

Jisim sebiji tembikai / *Mass of a watermelon*

= 6 × 0.6

= 3.6 kg

Jisim sebiji betik / *Mass of a papaya*

= 3 × 0.6

= 1.8 kg

Jumlah / *Total* = 3.6 + 1.8

= 5.4 kg

(b) Katakan x ialah jumlah masa yang dihabiskan dalam 12 hari.
Let x be the total time spent in 12 *days.*

Jumlah jam dihabiskan dalam masa 3 hari
Total hours spent in 3 *days*
$= 2.3 + 3.75$
$= 6.05$ jam / *hours*

$$\frac{3 \text{ hari } / days}{6.05 \text{ jam } / hours} \overset{\times 4}{=} \frac{12 \text{ hari } / days}{x}$$

$x = 6.05 \times 4$
$= 24.2$ jam / *hours*

(c) Kelajuan pemanduan Encik Ramli
Speed of Encik Ramli's drive
$= 110 - 30$
$= 80$ km/j (km/h)

Katakan x ialah jumlah masa yang diambil dengan kelajuan 80 km/j
Let x be the total time taken with the speed of 80 km/h

$110 : 80 = x : 2$

$$\frac{110}{80} = \frac{x}{2}$$

$$x = \frac{110 \times 2}{80}$$

$$= 2\frac{3}{4} \text{ jam / } hours$$

(d) Katakan x ialah bilangan membakar.
Let x be the number of baking.

3 orang guru / *teachers* = 18 biji / *cupcakes*

1 guru / *teacher* $= \frac{18}{3}$
$= 6$

24 orang guru / *teachers* $= 6 \times 24$
$= 144$ biji / *cupcakes*

$$\frac{1}{18} \overset{\times 8}{=} \frac{x}{144} \qquad x = 1 \times 8 = 8$$

Maka, 8 kali pembakaran diperlukan.
Hence, 8 *times of baking are needed.*

17. Peratusan soalan dijawab dengan betul
The percentage of the questions answered correctly

$$= \frac{4}{4+1} \times 100\% = 80\%$$

18. Nisbah kedai telah memasang CCTV kepada yang belum memasang CCTV
The ratio of the shops that have installed CCTV *to the shop that have not installed* CCTV
$= 65 : 100 - 65$
$= 65 : 35$
$= 13 : 7$

19. Katakan b ialah peratusan air yang tinggal di dalam bekas.
Let b be the percentage of the water left in the container.

Isi padu air yang tinggal di dalam bekas / *The volume of water left in the container*
$= 2\,500 - 500$
$= 2\,000$ ml

$$\frac{b}{100} = \frac{2\,000}{2\,500}$$

$$2\,500 \times b = 2\,000 \times 100$$

$$b = \frac{2\,000 \times 100}{2\,500}$$

$$= 80\%$$

Peratusan isi padu air yang tinggal di dalam bekas ialah 80%.
Percentage of the volume of water left in the container is 80%.

20. (a) (i) $4x + 5x + 1 = 91$
$9x = 90$
$x = 10$

(ii) Panjang tali B / *Length of rope B*
$= 5(10) + 1$
$= 51$ cm

Panjang tali A / *Length of rope A*
$= 4(10)$
$= 40$ cm

Peratusan panjang tali B kepada tali A
The percentage of the length of rope B to rope A

$$= \frac{51}{40} \times 100\%$$

$= 127.5$ %

(b) (i) Panjang baharu : Lebar baharu : Tinggi baharu
New length : *New width* : *New height*
$= 1.2 \times 5 : 1.2 \times x^2 : 1.2 \times 3$
$= 5 : x^2 : 3$

Tambah 20% = 120% = 1.2
Add 20% = 120% = 1.2

Maka, nisbah tidak berubah.
Hence, the ratio remains the same.

(ii) Tinggi asal / *Original height* $= 7.2 \div 1.2$
$= 6$ cm

3 bahagian tinggi / *parts of height* = 6 cm
1 bahagian tinggi / *part of height* = 2 cm
Panjang asal / *Original length* $= 5 \times 2$
$= 10$ cm

Lebar asal / *Original width*
$= x^2 \times 2 = 2x^2$

$10 \times 2x^2 \times 6 = 1\,920$
$2x^2 \times 60 = 1\,920$

$$x^2 = \frac{1\,920}{2 \times 60}$$

$= 16$

Isi padu baharu / *New volume*
$= (1.2 \times 10) \times [1.2 \times 2(16)] \times 7.2$
$= 12 \times 38.4 \times 7.2$
$= 3\,317.76\ \text{cm}^3$

21. Projek STEM

Praktis Masteri 4

BAHAGIAN A

1. $q : r = 4 : 3 = 8 : 6$
$p : r = 7 : 6$
$p : q : r = 7 : 8 : 6$
Jawapan / *Answer* : **C**

2. **A**: RM3.20 ÷ 8
= RM0.40
B: RM4.50 ÷ 9
= RM0.50
C: RM10.50 ÷ 12
= RM0.88
D: RM13.50 ÷ 15
= RM0.90
Jawapan / *Answer* : **A**

3. Masa yang diambil
The time taken
$= \frac{27}{15} \times 300$
= 540 saat
= 540 ÷ 60
= 9 minit / *9 minutes*
Jawapan / *Answer* : **C**

4. Bilangan jubin perang
The number of brown coloured tiles
$= \frac{4}{4+3} \times 210$
$= \frac{4}{7} \times 210$
= 120
Jawapan / *Answer* : **D**

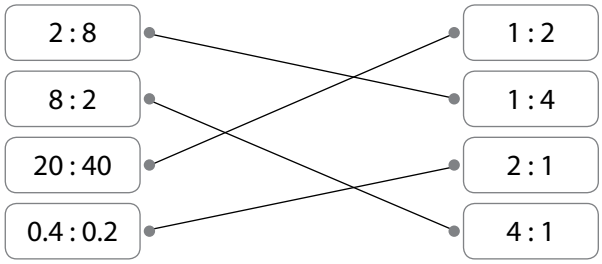
5. Umur Aishah
Aishah's age
$= \frac{4}{3+5+4} \times 156$
$= \frac{4}{12} \times 156$
= 52 tahun
52 years old
Jawapan / *Answer* : **C**

6. Peratusan air mineral dalam jus epal
The percentage of mineral water in the apple juice
$= \frac{4}{5} \times 100\%$
= 80%
Jawapan / *Answer* : **A**

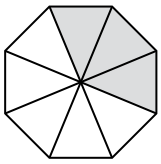
BAHAGIAN B

7. (a) ✓
(b) ✗
(c) ✓
(d) ✗

8.



9. (a) $\frac{9}{24} = \frac{3}{8}$



(b) $5 : 4 = 5 \times 25 : 4 \times 25$
$= 125 : 100$
$= 125\%$

10. (a) (i) $40° : 60° : 100°$
$= 2 : 3 : 5$ ✓

(ii) 2 kg : 3 kg : 500 g
$= 2\,000 : 3\,000 : 500$
$= 4 : 6 : 1$ ✗

(b) (i) 12
(ii) $3\frac{1}{3}$

BAHAGIAN C

11. (a) $a : b = 4 : 5$
$= 4 \times$ [2] $: 5 \times$ [2]
$b : c = 2 : 3$
$= 2 \times$ [5] $: 3 \times$ [5]
Maka / *Therefore*, $a : b : c = 8 : 10 : 15$

(b) $q - p - r = 9 - 4 - 2$
$= 3$
Maka / *Therefore*, 1 unit $= \frac{24}{3}$

$p = 4 \times \frac{24}{3}$
$= 32$

$q = 9 \times \frac{24}{3}$
$= 72$

$r = 2 \times \frac{24}{3}$
$= 16$

(c) (i) Ayda : Janet : Ruby
3 : 6 : 1

3 unit / *units* + 1 unit = 4 unit / *units*
4 unit / *units* → 280 biji gula-gula / *sweets*
1 unit → 70 biji gula-gula / *sweets*

6 unit / *units* – 1 unit = 5 unit / *units*
5 unit / *units* → 5 × 70
= 350 biji gula-gula / *sweets*

Janet menerima lebih 350 biji gula-gula berbanding Ruby.
Janet received 350 more sweets than Ruby.

(ii) Bilangan baharu gula-gula Ayda
New number of sweets of Ayda
= 50% × (3 × 70)
= 50% × 210
= 105

Bilangan gula-gula Janet
Number of sweets of Janet
= 6 × 70
= 420

Bilangan baharu gula-gula Ruby
New number of sweets of Ruby
= (1 × 70) + 105
= 70 + 105
= 175

Nisbah baharu / *New ratio*
= 105 : 420 : 175
= 21 : 84 : 35

12. (a) (i) Nisbah harga komputer riba kepada pendapatan bulanan
The ratio of the price of the laptop to the monthly wage
= 40% : 100%
= 2 : 5

(ii) 2 unit / *units* → RM3 500
1 unit → RM1 750

Pendapatan bulanan asal
Original monthly wage
= 5 × RM1 750
= RM8 750

Nisbah baharu / *New ratio*
= 3 500 : (8 750 + 1 250)
= 3 500 : 10 000
= 7 : 20

(b) Fadia : □□ + RM400
Suhail : □□□■ } RM1 600
Belanja / *Spent*

6 unit / *units* → RM1 600 – RM400
= RM1 200
1 unit → RM1 200 ÷ 6
= RM200

Nilai wang yang dimiliki oleh Fadia pada asalnya
The value of money that Fadia had at first
= (2 × RM200) + RM400
= RM800

(c) Lelaki / *Boys*

□□□□□

Perempuan / *Girls*

□□■■■■■■■■■
56

8 unit / *units* → 56
1 unit → 56 ÷ 8
= 7

5 unit / *units* → 5 × 7
= 35

Terdapat 35 murid orang lelaki dalam Kelab Catur
There are 35 boys in Chess Club.

Fokus KBAT

(a) Jisim kerepek kentang yang dibungkus oleh Alia dalam masa 1 jam
Mass of potato chips packed by Alia in 1 hour

$= \frac{10}{2} = 5$ kg

Jisim kerepek kentang yang dibungkus oleh Farah dalam masa 1 jam
Mass of potato chips packed by Farah in 1 hour

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

Jisim kerepek kentang yang dibungkus oleh Bei Yee dalam masa 1 jam
Mass of potato chips packed by Bei Yee in 1 hour

$= \frac{12}{2} = 6$ kg

Pekerja yang paling cekap ialah Farah kerana dia boleh membungkus kerepek kentang yang terbanyak dalam masa 1 jam.
The most efficient worker is Farah because she can pack the most potato chips in 1 hour.

(b)

Pekerja *Workers*	**Jisim kerepek kentang per jam (kg)** *Mass of potato chips per hour* (kg)	**Pecahan** *Fraction*	**Peratusan** *Percentage*
Alia dan Bei Yee *Alia and Bei Yee*	5 + 6 = 11	$\frac{11}{18}$	61.11%
Farah	7	$\frac{7}{18}$	38.89%
Beza *Difference*	11 – 7 = 4 kg	$\frac{11}{18} - \frac{7}{18} = \frac{4}{18}$ $= \frac{2}{9}$	61.11% – 38.89% = 22.22%