

JAWAPAN

Tingkatan 4

Bab 1 Fungsi dan Persamaan Kuadratik dalam Satu Pemboleh Ubah Quadratic Functions and Equations in One Variable

- $x = 4, x = 9$
 - $x = -7, x = 7$
 - $x = \frac{5}{4}, x = -2$
 - $x = 5, x = \frac{1}{3}$
 - $x = \frac{5}{2}, x = -1$
 - $x = 1, x = -3$
 - $x = 3, x = \frac{2}{5}$
 - $x = \frac{1}{3}, x = -2$
- $9x^2 - \frac{1}{2}x - 2$
 - $x = 5, x = -\frac{89}{18}$ (abaikan/ignore)
 $PQ = 3(5) + 4 = 19$ cm
- $x = 3, x = -\frac{106}{35}$ (abaikan/ignore)
Harga/Price = RM17
Bilangan buku/Number of books = 18
 - 25 buku/books
- 75 km j⁻¹/75 km h⁻¹
- $x = 2$
 - 76 tahun/years
- 72
- 50

Bab 2 Asas Nombor Number Bases

- 93 2. 453₇ 3. 253₇ 4. 102₆
- 40₅, 11100₂, 30₁₀, 37₈
- 544
 - 2030
 - 101001
 - 13027
- | | | | |
|---|-----|----|--------------------------|
| 5 | 237 | -2 | ↑
= 1422 ₅ |
| 5 | 47 | -2 | |
| 5 | 9 | -4 | |
| 5 | 1 | -1 | |
| | 0 | | |
- 4033₅
 - 10111111₂
 - 18567₉
 - 320₅
 - 4454₆
 - 5331₇
 - 2020₃
 - 13550₈
- $A = \text{RM}200, B = \text{RM}195.50$
Kasut A lebih mahal.
Shoe A more expensive.
 - 1001₂
- RM10352₈
 - $P = 4, Q = 3$

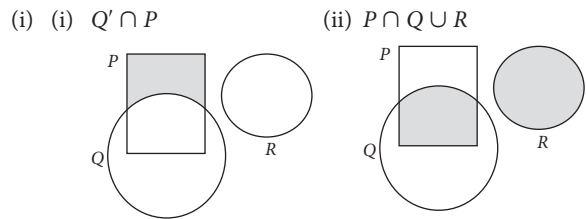
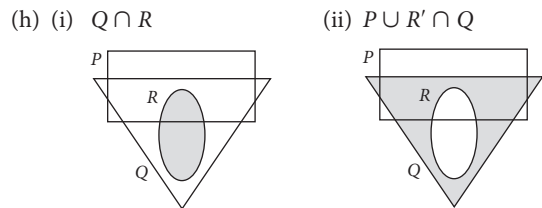
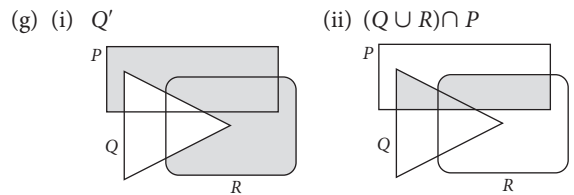
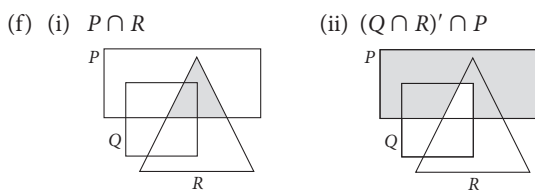
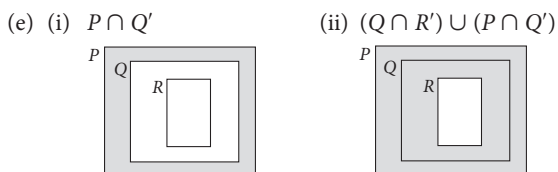
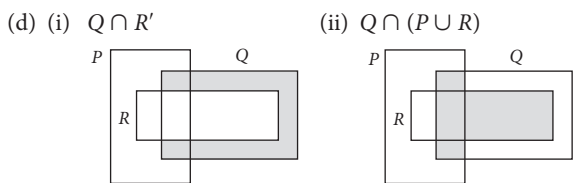
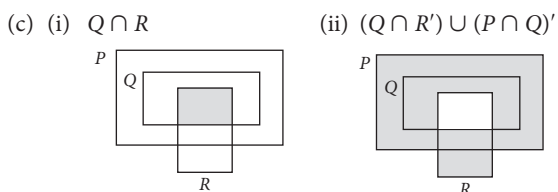
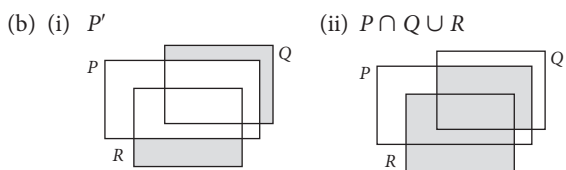
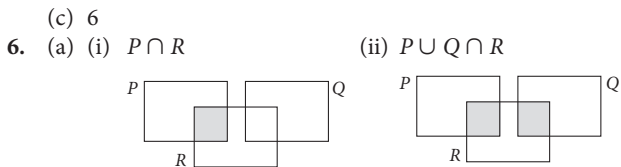
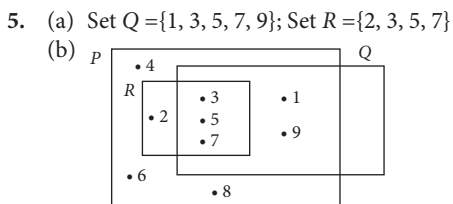
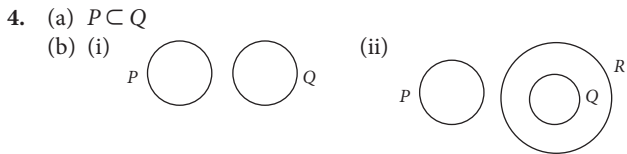
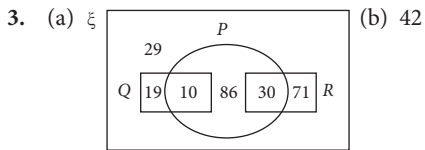
Bab 3 Penaakulan Logik Logical Reasoning

- Benar/True
 - Benar/True
 - Benar/True
 - Palsu/False

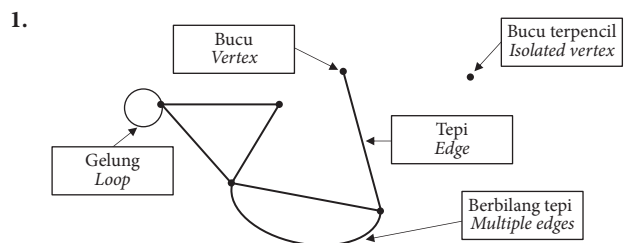
- Palsu/False
 - Benar/True
- Palsu/False
 - Palsu/False
 - Semua/All
 - Sebilangan/Some
 - Sebilangan/Some
 - Semua/All
 - Semua/All
 - Sebilangan/Some
 - Implikasi 1: Jika sesebuah poligon ialah heksagon, maka poligon itu mempunyai 6 pepenjuru.
Implication 1: If a polygon is a hexagon, then the polygon has 6 diagonals.
Implikasi 2: Jika sesebuah poligon mempunyai 6 pepenjuru, maka poligon itu ialah heksagon.
Implication 2: If a polygon has 6 diagonals, then the polygon is a hexagon.
 - Implikasi 1: Jika $m = 5$ maka, $m + 10 = 15$
Implication 1: If $m = 5$ then, $m + 10 = 15$
Implikasi 2: Jika $m + 10 = 15$ maka, $m = 5$
Implication 2: If $m + 10 = 15$ then, $m = 5$
 - $p > q$ jika dan hanya jika $p + 5 > q + 5$
 $p > q$ if and only if $p + 5 > q + 5$
 - $mn > 0$ jika dan hanya jika $m < 0$ atau $n < 0$
 $mn > 0$ if and only if $m < 0$ or $n < 0$
 - $y^3 = -8$ jika dan hanya jika $y = -2$
 $y^3 = -8$ if and only if $y = -2$
 - Jika $x > 8$, maka $3x - 2 > 20$. (Benar)
If $x > 8$, then $3x - 2 > 20$. (True)
 - Jika p ialah satu nombor genap, maka p ialah satu gandaan 4. (Palsu)
If p is an even number, then p is a multiple of 4. (False)
 - 20 boleh dibahagi tepat dengan 2.
20 can be divided exactly by 2.
 - 13 mempunyai dua faktor sahaja.
13 has two factors only.
 - Lelayang mempunyai empat sisi.
A kite has four sides.
 - 4 ialah faktor bagi 40.
4 is a factor of 40.
 - Setiap sudut pedalaman KLM ialah 60°.
Each interior angle of KLM is 60°.
 - q ialah satu nombor genap.
 q is an even number.
 - ABCD bukan segi empat sama.
ABCD is not a square.
 - $2x \neq 12$
 - $4n + 5, n = 1, 2, 3, \dots$
 - $n^2 + 9, n = 1, 2, 3, \dots$
 - $2^n + n, n = 1, 2, 3, \dots$
 - $\pi(5^2)(10) = 250\pi$
 - $(5 - 2) \times 180^\circ = 540^\circ$
 - 64 ialah nombor kuasa dua sempurna atau 22 ialah nombor perdana.
64 is a perfect square or 22 is a prime number.
 - $x^2 + 5 \neq 21$
 - $8^n - 17, n = 1, 2, 3, \dots$
 - Palsu/False
 - Benar/True
 - $x \neq 2$
 - $n^2 - 3(6 + n), n = 1, 2, 3, \dots$

Bab 4 Operasi Set
Operations on Sets

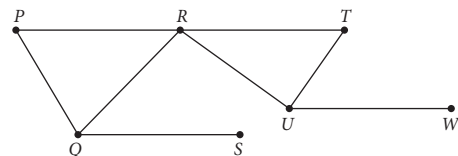
- 22
- 3



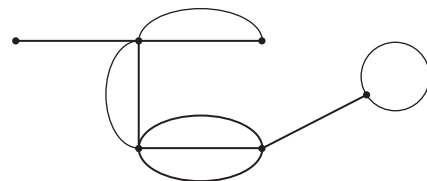
Bab 5 Rangkaian dalam Teori Graf
Network in Graph Theory



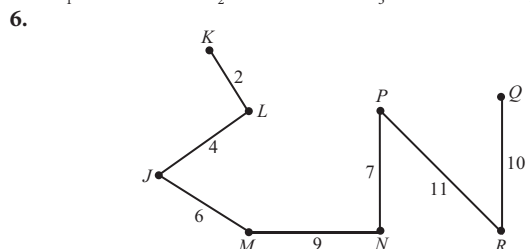
2. Cadangan jawapan/Suggested answer:



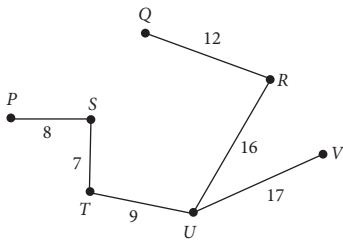
3. Cadangan jawapan/Suggested answer:



4. (a) $d_{in}(P) = 1$ $d_{out}(P) = 0$
 (b) $d_{in}(Q) = 0$ $d_{out}(Q) = 3$
 (c) $d_{in}(S) = 2$ $d_{out}(S) = 2$
 (d) $d_{in}(U) = 3$ $d_{out}(U) = 2$
5. $V_1 = 75$ $V_2 = 50$ $V_3 = 55$ $V_4 = 110$

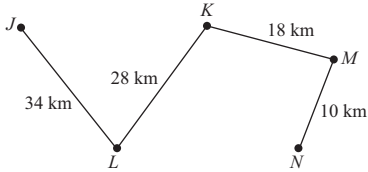


7.



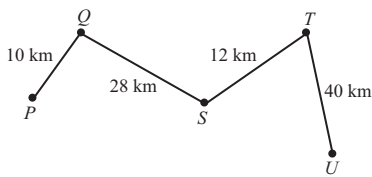
8. (a) $L \rightarrow M = 4:00$ p.m.
 $L \rightarrow J = 4:52$ p.m.

(b) (i)



(ii) $72 \text{ km j}^{-1}/\text{km h}^{-1}$

9.



Pengangkutan Transportation	Bas Bus	Teksi Taxi	E-panggilan E-hailing
Masa Time	1 jam 17 minit 1 hour 17 minutes	1 jam 8 minit 1 hour 8 minutes	1 jam 1 hour
Kos Cost	RM36	RM57.50	RM42.50
Kos seminit Cost per minute	RM0.47	RM0.85	RM0.71

\therefore E-panggilan kerana lebih murah berbanding dengan teksi dan sampai lebih cepat berbanding dengan bas.

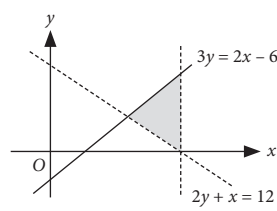
E-hailing because it is cheaper compared to taxi and can arrive faster compared to bus.

10. (a) 3.6 jam/hours
 (b) 4.725 jam/hours; 2:43 p.m.

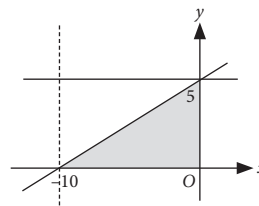
Bab 6 Ketaksamaan Linear dalam Dua Pemboleh Ubah
Linear Inequalities in Two Variables

- (a) $6y > 5x - 30$
 (c) $x \geq 6$
- (a) $y + x \geq 8$
 (c) $y \leq 8$
- (a) $y + x \leq 1$
 (c) $x > -4$
- (a) $2y < -x + 6$
 (c) $y > x + 5$
- (a) $y \geq x + 2$
 (c) $y < -x + 1$
- (a) $x \leq 10$
 (c) $y > -\frac{1}{2}x + 5$
- (a) $x \geq 0$
 (c) $y \geq x$
- (a) $3y + 2x \leq 6$
 (c) $y > 2$
- (a) $3y \leq -2x - 12$
 (c) $x \geq -12$

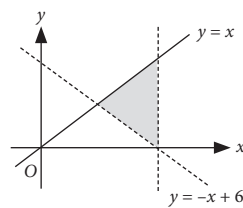
10.



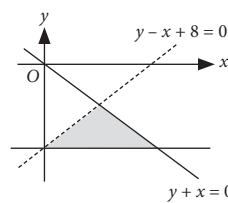
12.



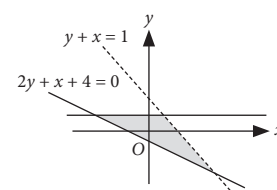
14.



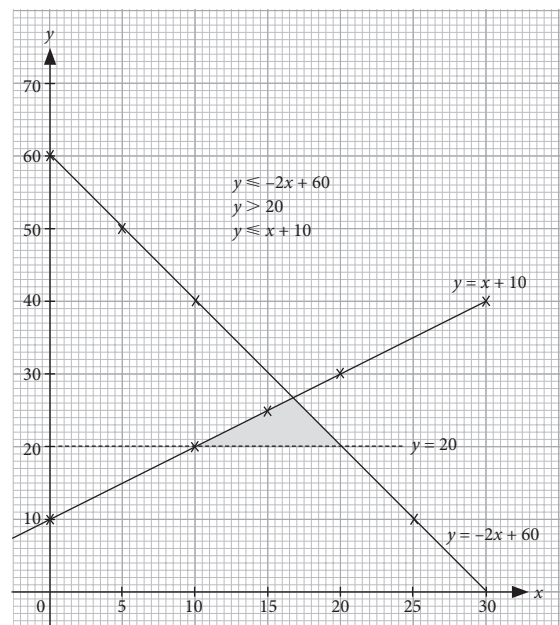
16.



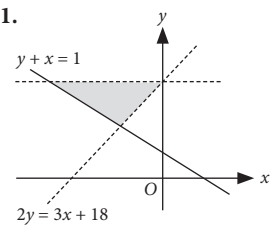
18.



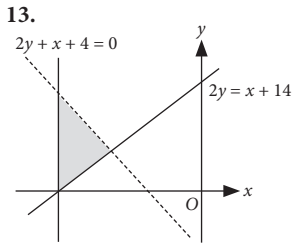
20.



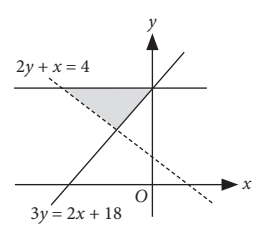
11.



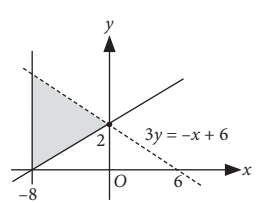
13.



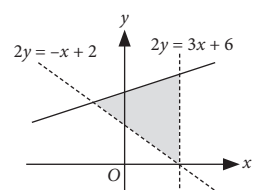
15.

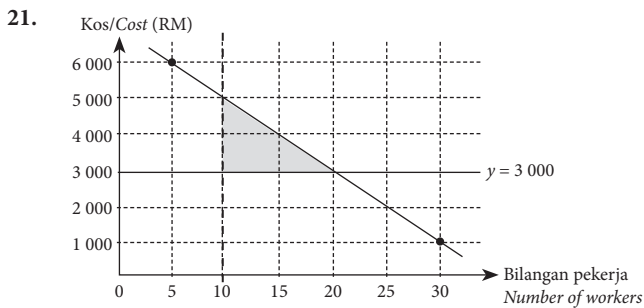


17.



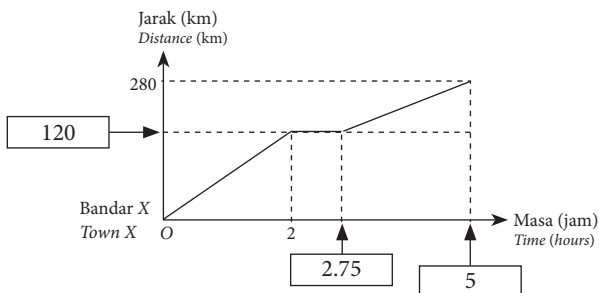
19.



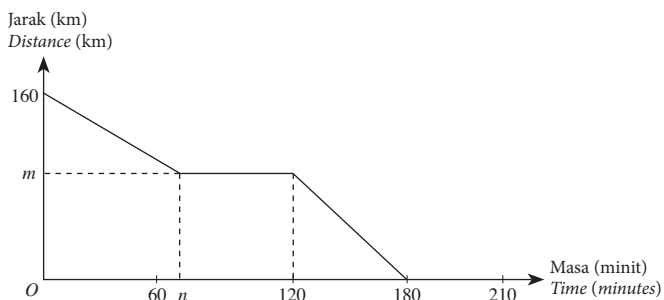


Bab 7 Graf Gerakan
Graphs of Motion

1. (a)(i)(ii)



- (b) $56 \text{ km j}^{-1} / 56 \text{ km h}^{-1}$
2. (a) 25 minit/minutes (b) 50 km
(c) $60 \text{ km j}^{-1} / 60 \text{ km h}^{-1}$ (d) $48 \text{ km j}^{-1} / 48 \text{ km h}^{-1}$
3. (a) 54 minit/minutes (b) 233
(c) $70 \text{ km j}^{-1} / 70 \text{ km h}^{-1}$
4. (a) 0.5 jam/hour (b) 95
(c) $81.43 \text{ km j}^{-1} / 81.43 \text{ km h}^{-1}$
5. (a) $80 \text{ km j}^{-1} / 80 \text{ km h}^{-1}$ (b) 90 km
(c) 1.125
6. (a) 60 minit/minutes (b) $50 \text{ km j}^{-1} / 50 \text{ km h}^{-1}$
(c) 90
7. (a) $70 \text{ km j}^{-1} / 70 \text{ km h}^{-1}$ (b) $-20 \text{ km j}^{-2} / -20 \text{ km h}^{-2}$
(c) 180
8. (a) 105 minit/minutes (b) 308.75 km
(c) 2
9. (a) 20 km (b) 40
(c) 30 minit/minutes (b) 1:00 p.m.
(c) 217.5 km (d) 72.5
(e) $10.36 \text{ km j}^{-1} / \text{km h}^{-1}$
11. (a) (i) $m = 100$ $n = 75$
(ii)



(b) 53.33 km j^{-1}

Bab 8 Sukatan Serakan Data Tidak Terkumpul
Measures of Dispersion for Ungrouped Data

1. Kuartil 1/Quartile 1: 16.5
Median/Median : 32

- Kuartil 3/Quartile 3: 51
Julat antara kuartil/Interquartile range: 34.5
2. Kuartil 1/Quartile 1 = 62
Median /Median = 73
Kuartil 3/Quartile 3 = 80
Julat antara kuartil/Interquartile range = 18
3. Kuartil 1/Quartile 1 = 7.5
Median/Median = 11.5
Kuartil 3/Quartile 3 = 21
Julat antara kuartil/Interquartile range = 13.5
4. Kuartil 1/Quartile 1 = 53
Median/Median = 61.5
Kuartil 3/Quartile 3 = 68
Julat antara kuartil / Interquartile range = 15

Kuartil 1 Quartile 1	Median Median	Kuartil 3 Quartile 3	Julat antara kuartil Interquartile range
29	43	51	22

6. 17.12

7. 1.9

8. (a) 27

(b) 35.4

(c) 15

9. (a)

	Julat antara skor Range of score	Min skor Score mean
Pemanah X Archer X	6	7.67
Pemanah Y Archer Y	3	7.5

(b) Sisihan piawai X/Standard deviation X = 2.356

Sisihan piawai Y/Standard deviation Y = 0.957

Pemanah Y kerana mempunyai nilai sisihan piawai yang lebih rendah yang menunjukkan bidikan yang lebih konsisten.

Archery Y because he/she has a lower value of the standard deviation that shows a more consistent shot.

10. Nilai minimum Minimum value	12
Nilai maksimum Maximum value	68
Julat Range	$68 - 12 = 56$
Median Median	30
Kuartil 1 Quartile 1	20
Kuartil 3 Quartile 3	57
Julat antara kuartil Interquartile range	$57 - 20 = 37$
Bentuk plot kotak Shape of box plot	Pencong positif Positively skewed

11. (a) 10.97

(b) (i) 8.68

(ii) Apabila nilai yang jauh lebih kecil daripada nilai min dikeluarkan, sisihan piawai baharu menjadi semakin kecil.

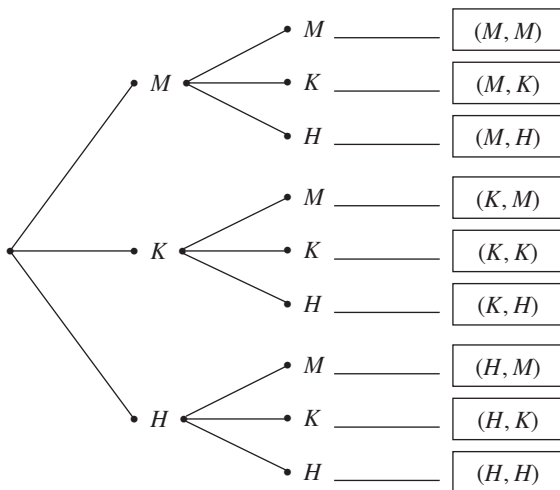
When a value that is much smaller than the mean is removed, the new standard deviation will be smaller.

Bab 9 Kebarangkalian Peristiwa Bergabung
Probability of Combined Events

1. (a) $\{(A, D), (A, E), (A, F), (B, D), (B, E), (B, F), (C, D), (C, E), (C, F)\}$
- (b) $\{(A, B), (A, C), (A, D), (A, E), (A, F), (B, A), (B, C), (B, D), (B, E), (B, F), (C, A), (C, B), (C, D), (C, E), (C, F), (D, A), (D, B), (D, C), (D, E), (D, F), (E, A), (E, B), (E, C), (E, D), (E, F), (F, A), (F, B), (F, C), (F, D), (F, E)\}$

- (c) $\{(A,B), (A,C), (A,D), (A,E), (A,F), (B,A), (B,C), (B,D), (B,E), (B,F), (C,A), (C,B), (C,D), (C,E), (C,F), (D,A), (D,B), (D,C), (D,E), (D,F), (E,A), (E,B), (E,C), (E,D), (E,F), (F,A), (F,B), (F,C), (F,D), (F,E)\}$
- (d) $\{(A,B), (A,C), (A,D), (A,E), (A,F), (B,C), (B,D), (B,E), (B,F), (C,D), (C,E), (C,F), (D,E), (D,F), (E,F)\}$
2. (a) $\{(S,E), (S,N), (S,Y), (S,U), (S,M), (E,S), (E,N), (E,Y), (E,U), (E,M), (N,S), (N,E), (N,Y), (N,U), (N,M), (Y,S), (Y,E), (Y,N), (Y,U), (Y,M), (U,S), (U,E), (U,N), (U,Y), (U,M), (M,S), (M,E), (M,N), (M,Y), (M,U)\}$
- (b) (i) $\{(U,S), (U,N), (U,Y), (U,M)\}$
 $\frac{2}{15}$
- (ii) $\{(E,S), (E,N), (E,Y), (E,U), (E,M), (S,M), (N,M), (Y,M), (U,M)\}$
 $\frac{3}{10}$
3. (a) $\{(7,8), (7,A), (7,U), (7,R), (7,7), (8,7), (8,A), (8,U), (8,R), (8,8), (A,7), (A,8), (A,U), (A,R), (A,A), (U,7), (U,8), (U,A), (U,R), (U,U), (R,7), (R,8), (R,A), (R,U), (R,R)\}$
- (b) (i) $\{(A,7), (A,8)\}$
 $\frac{2}{15}$
- (ii) $\{(7,R), (8,R), (A,R), (U,R), (R,R)\}$
 $\frac{1}{5}$

4. (a)



- (b) (i) $\frac{2}{11}$ (ii) $\frac{17}{55}$
5. (a) $\{(1,2), (1,3), (1,4), (1,5), (2,1), (2,3), (2,4), (2,5), (3,1), (3,2), (3,4), (3,5), (4,1), (4,2), (4,3), (4,5), (5,1), (5,2), (5,3), (5,4)\}$
- (b) (i) $\{(4,2), (4,3), (4,5)\}$
 $\frac{3}{20}$
- (ii) $\{(1,2), (1,4), (2,1), (2,3), (2,5), (3,2), (3,4), (4,1), (4,3), (4,5), (5,2), (5,4)\}$
 $\frac{3}{5}$

6. (a)

	5	6	7	8	9
5		(56)	(57)	(58)	(59)
6			(67)	(68)	(69)
7				(78)	(79)
8					(89)
9					

atau
or

	5	6	7	8	9
5					
6	(65)				
7	(75)	(76)			
8	(85)	(86)	(87)		
9	(95)	(96)	(97)	(98)	

- (b) (i) $\{(57), (59), (67), (69), (79), (89)\}$ atau/or $\{(65), (75), (85), (87), (95), (97)\}$
 $\frac{3}{5}$
- (ii) $\{(56), (68)\}$ atau/or $\{(76), (96)\}$
 $\frac{1}{5}$
7. (a) $\{(3,2), (3,5), (3,7), (3,8), (4,2), (4,5), (4,7), (4,8), (6,2), (6,5), (6,7), (6,8)\}$
- (b) (i) $\{(4,2), (4,5), (4,7)\}$
 $\frac{1}{4}$
- (ii) $\{(3,5), (3,7), (4,2), (4,8), (6,2), (6,8)\}$
 $\frac{1}{2}$
8. (a) $\{(J,C), (J,U), (J,b), (J,a), (J,J), (O,C), (O,U), (O,b), (O,a), (O,O), (m,C), (m,U), (m,b), (m,a), (m,m)\}$
- (b) (i) $\{(J,J), (O,O), (m,m)\}$
 $\frac{1}{5}$
- (ii) $\{(J,b), (J,a), (O,b), (O,a), (m,C), (m,U)\}$
 $\frac{2}{5}$
9. (a) $\{(Q,Q), (Q,7), (Q,X), (Q,5), (Q,U), (7,Q), (7,7), (7,X), (7,5), (7,U), (X,Q), (X,7), (X,X), (X,5), (X,U), (5,Q), (5,7), (5,X), (5,5), (5,U), (U,Q), (U,7), (U,X), (U,5), (U,U)\}$
- (b) (i) $\{(Q,7), (Q,5), (X,7), (X,5)\}; \frac{4}{25}$
- (ii) $\{(Q,Q), (Q,X), (Q,U), (7,7), (7,5), (X,Q), (X,X), (X,U), (5,7), (5,5), (U,Q), (U,X), (U,U)\}; \frac{13}{25}$
10. (a) $\{(3,1), (3,2), (3,7), (3,8), (5,1), (5,2), (5,7), (5,8), (9,1), (9,2), (9,7), (9,8), (4,1), (4,2), (4,7), (4,8)\}$
- (b) (i) $\{(4,1), (4,7)\}; \frac{1}{8}$
- (ii) $\{(9,1), (9,2), (9,7), (9,8), (3,2), (5,2), (4,2)\}; \frac{7}{16}$
11. (a) $\{(P,3), (P,E), (P,9), (P,G), (4,P), (4,K), (K,3), (K,E), (K,9), (K,G)\}$
- (b) (i) $\{(4,P), (4,K)\}; \frac{1}{5}$
- (ii) $\{(K,3), (K,E), (K,9), (K,G), (P,9)\}; \frac{1}{2}$

Bab 10 Pengurusan Kewangan Financial Management

- Menetapkan matlamat kewangan
Setting goals
 - Menilai kedudukan kewangan
Evaluating financial status
 - Mewujudkan pelan kewangan
Creating financial plan
 - Melaksanakan pelan kewangan
Carrying out financial plan
 - Mengkaji semula dan menyemak kemajuan
Reviewing and revising the progress
- Matlamat jangka pendek
Short-term financial goals
 - Matlamat jangka panjang
Long-term financial goals
 - Matlamat jangka sederhana
Medium-term financial goals
- RM1 000, Aliran tunai positif/*positive cash flow*
 - RM200, Aliran tunai negatif/*negative cash flow*

4. (a) Ya, kerana lebih aliran tunai sebenar lebih tinggi berbanding pelan kewangan.
Yes because the actual cash flow is higher than the financial plan.
- (b) (i) RM750
(ii) M – menyimpan RM750 sebulan
Savings RM750 monthly
 T – 6 bulan/months
(iii) Menjimatkan penggunaan utiliti seperti air dan elektrik.
Save the using of utilities such that water and electricity.
Menaiki kenderaan awam.
Take public transportation.
Berkongsi kenderaan ke tempat kerja.
Carpooling to workplace.
(Terima mana-mana jawapan yang sesuai.)
(Accept any others reasonable answer.)
5. (a) RM2 000, Aliran tunai positif./Positive cash flow.
(b) Lebih kurang RM1 084
Around RM1 084
(c) Tidak/No
– Bayaran pinjaman rumah bulanan yang perlu dibuat tinggi.
The monthly housing loan to be made is in a big amount.
– Meningkatkan perbelanjaan tetap bulanan.
Increase the monthly fixed expenses.
6. (a) (i) RM345 (ii) RM955 (iii) 54.57%
(b) (i) Mengurangkan perbelanjaan dapur dan lain-lain perbelanjaan.
Reduce the expenses of groceries and other expenses.
Menjimatkan penggunaan air dan elektrik bagi mengurangkan bil utiliti.
Save the using of water and electricity so lessen the utility bills.
Tidak perlu membuat simpanan ASB pada bulan tersebut.
No need to make ASB savings on that month.
Berbincang dengan pemilik rumah untuk menangguhkan bayaran sewa rumah pada bulan tersebut.
Discuss with the house owner to postpone the payment of the house rental.

(ii)

Pendapatan/Income (RM)		Perbelanjaan/Expenses (RM)	
Gaji <i>Salary</i>	2 808	Sewa rumah <i>House rental</i>	1 300
Elaun <i>Allowances</i>	950	Ansuran pinjaman kereta <i>Car loan instalment</i>	850
Komisen <i>Commissions</i>	345	Bil utiliti <i>Utility bills</i>	390
Bonus dan lain-lain <i>Bonus and others</i>	1 959	Perbelanjaan dapur <i>Groceries expenses</i>	1 146
		Insurans <i>Insurance</i>	180
		Lain-lain perbelanjaan <i>Other expenses</i>	1 106
		Simpanan ASB <i>ASB savings</i>	1 000
		Internet <i>Internet</i>	90
Jumlah pendapatan <i>Total income</i>	6 062	Jumlah perbelanjaan <i>Total expenses</i>	6 062

7. (a) $P = 475$ $Q = 100$ $R = 6\,275$
 $S = 2\,300$ $T = 1\,100$ $U = 120$
- (b) Encik Lee Wei mempunyai lebih pendapatan sebanyak RM575 yang menunjukkan aliran tunai positif.
Encik Lee Wei has surplus of income of RM575 which shows the positive ash flow.
- (c) Encik Lee Wei perlu menyediakan RM1 200 sebulan dalam masa lima bulan. Aliran tunainya akan menjadi negatif.
Encik Lee Wei tidak mampu untuk mencapai matlamatnya dengan pelan kewangan sedia ada.
Encik Lee Wei need to prepare RM1 200 monthly within of five months. His will get a negative cash flow.
He cannot achieve his goals with his current financial plan.

Tingkatan 5

Bab 1 Ubahan Variation

1. (a) $x = 7y$ (b) $x = \frac{3}{2}y^2$
2. (a) $x = \frac{1}{5}V$ (b) 30 cm
3. (a) 80 (b) 261
4. $P = 160, Q = 14$
5. $x = \frac{y^2z}{25}$
6. $x = \frac{50}{y^2}$
7. (a) $L \propto \frac{1}{2}xy$ (b) 45 cm²
8. (a) $S = \frac{90}{T}$ (b) 0.9
9. (a) $V = \frac{22}{7}j^2h$ (b) 25
(c) 21
10. (a) $T = \frac{5N}{W^2}$ (b) 18.75 jam/hours
(c) Syarikat itu memerlukan 20 orang pekerja.
The company needs 20 workers.
11. (a) RM50 (b) RM30
(c) 9
12. 8
13. (a) (i) 64.8 (ii) 10
(b) -40.8

Bab 2 Matriks Matrices

1. $b = 2, d = 4$
2. $f = 3, g = -2$
3. $m = 6, n = 4$
4. $p = -3, q = -2$
5. $x = -6, y = 9, z = -7$
6. Harga sebatang pen/Price of a pen: RM8.50
Harga sebuah buku/Price of a book: RM4.50
7. Bilangan lembu = 15
Number of cows = 15
Bilangan itik = 115
Number of ducks = 115
8. (a) $\begin{bmatrix} -2 & -1 \\ 5 & 3 \\ 4 & 4 \end{bmatrix}$ (b) $x = 2, y = 3$
9. (a) $m = -2, n = 1$ (b) $p = -4, q = 3$

10. (a) $\begin{bmatrix} 2 & 1 \\ -\frac{3}{4} & -\frac{1}{2} \end{bmatrix}$ (b) $x = 3, y = -2$
11. (a) 14 (b) $x = 1.5, y = -2$
12. (a) $6p + 2q = 86$
 $p + q = 19$
(b) Tiket dewasa = RM12
Adult ticket = RM12
Tiket kanak-kanak = RM7
Children ticket = RM7
13. (a) $x = 8, y = -3$
(b) Kumpulan Theta/Theta group
14. (a) $0.6x + 2y = 34$
 $3x + 6y = 138$
(b) Harga 1 kg daging/Price of 1 kg meat = RM30.00
Harga 1 kg ayam/Price of 1 kg chicken = RM8.00
(c) 10 kg
15. (a) $\begin{bmatrix} 2 & 5 \\ 4 & -5 \end{bmatrix} \begin{bmatrix} B \\ S \end{bmatrix} = \begin{bmatrix} 225 \\ 225 \end{bmatrix}$
(b) Harga sehelai baju = RM75
Price of a shirt = RM75
Harga sehelai skirt = RM15
Price of a skirt = RM15

Bab 3 Insurans Insurance

1. (a) Musibah yang tidak dapat dielakkan dan melibatkan kerugian
Disasters that are unavoidable and involve losses
(b) Perkongsian bersama kerugian antara pemegang polisi dan syarikat insurans
A cost sharing of the loss between the policyholder and the insurance company

Aspek Aspect	Insurans Hayat Life Insurance	Insurans Am General Insurance
Bentuk bayaran pampasan <i>Form of compensation</i>	Kewangan <i>Financial</i>	Ganti rugi <i>Compensation</i>
Perlindungan yang diberikan <i>Protection provided</i>	Kematian, penyakit kritikal dan kecatatan kekal (ilal) <i>Death, critical illness and loss of ability</i>	Mengikut jenis insurans <i>According to the type of insurance</i>
Tempoh perlindungan <i>Protection period</i>	Jangka panjang <i>Long term</i>	Setahun atau kurang <i>A year or less</i>

3. Jantina, umur, merokok
Gender, age, smoking
4. Lokasi, kapasiti enjin, jenis polisi
Location, engine capacity, type of policy
5. (a) RM664 (b) RM646
6. RM316 923.08
7. (a) Dia tidak layak menuntut insurans kerana kos pembedahan kurang daripada nilai deduktibel.
He can't claim the insurance because the cost of surgery is less than deductible amount.
(b) Dia layak menuntut insurans kerana kos yang ditanggung melebihi nilai deduktibel. Dia layak menuntut insurans berjumlah RM95 000.
He can claim the insurance because the operation cost is more than deductible amount. He can claim RM95 000.

8. (a) RM225 000
(b) (i) RM40 000 (ii) RM31 000, RM9 000
(c) RM270 000

Bab 4 Percukaian Taxation

1. (a) RM80 000 (b) RM6 700
2. RM1 252.80
3. (a) RM48 400
(b) RM1 272
(c) Siti akan menerima lebihan bayaran cukai pendapatan memandangkan jumlah PCB melebihi cukai pendapatan yang dikenakan, iaitu RM3 000.
Siti will receive the excess income tax payment as the amount of PCB is more than the income tax imposed which is RM3 000.

4. RM45.12
5. (a) RM272.80
(b) RM289.17
6. RM906.30
7. (a) 3
(b) Jumlah pendapatan
Total income RM108 500
Tolak: Pengecualian cukai [derma]
Minus: Tax exemption [donation] RM1 500
Tolak: Pelepasan cukai
Minus: Tax reliefs
• Individu
Individual RM9 000
• Isteri dan anak bawah 18 tahun
Spouse and children below 18 years old RM10 000
• KWSP dan insurans hayat
KWSP and life insurance RM6 200
• Gaya hidup
Life style RM2 500
• Rawatan perubatan
Medical treatment RM1 850
Pendapatan Bercukai
Chargeable Income RM77 450
Cukai bagi RM70 000 yang pertama
Tax on the first RM70 000 RM4 600
RM7450 yang berikutnya $\times 21\%$
Tax on the next RM7450 $\times 21\%$ RM1 564.50
Jumlah cukai dikenakan
Amount of tax charged RM6 164.50
Tolak: Rebat [zakat, RM180 $\times 12$]
Minus: Rebate [zakat, RM180 $\times 12$] RM2 160
Cukai pendapatan yang perlu dibayar
Income tax payable RM4 004.50
Tolak: PCB [RM370 $\times 12$]
Minus: PCB [RM370 $\times 12$] RM4 440
Baki cukai kena bayar
The remaining tax payable -RM435.50
8. RM9 453.50
9. RM1 080
10. (a) RM164.64 (b) RM16 600
(c) 3.8%

Bab 5 Kekongruenan, Pembesaran dan Gabungan Congruency, Enlargement and Combined Transformations

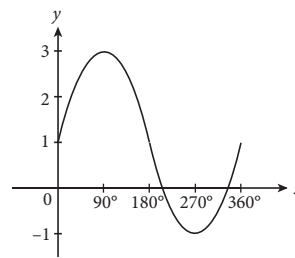
1. (a) (i) (7, 4) (ii) (7, 0)
(b) (i) (a) X ialah putaran 90° ikut arah jam pada pusat (6, 1)
X is a clockwise rotation of 90° about the centre (6, 1)

- (b) Y ialah pembesaran pada pusat (7, 8) dengan faktor skala 3
Y is an enlargement about the centre (7, 8) with the scale factor of 3
- (ii) 320 cm²
2. (a) (i) (-11, 4) (ii) (-6, 8)
- (b) (i) (a) X ialah pembesaran pada pusat (-8, 12) dengan faktor skala $\frac{1}{3}$
X is an enlargement about centre (-8, 12) with a scale factor of $\frac{1}{3}$
- (b) Y ialah putaran 180° pada pusat (-8, 7)
Y is a rotation of 180° about the centre (-8, 7)
- (ii) 35 cm²
3. (a) (i) (7, 5) (ii) (-3, 7)
- (b) (i) U ialah putaran 90° arah jam pada pusat (8, 9)
U is a clockwise rotation of 90° about the centre (8, 9)
- (ii) V ialah pembesaran pada pusat (7, 3) dengan faktor skala 2
V is an enlargement about centre (7, 3) with a scale factor of 2
- (c) 36 cm²
4. (a) (i) (4, 3) (ii) (8, -1)
- (b) (i) (a) X ialah putaran 180° pada pusat (4, 5)
X is a rotation of 180° about the centre (4, 5)
- (b) Y ialah pembesaran pada pusat (9, 5) dengan faktor skala 3
Y is an enlargement about centre (9, 5) with a scale factor of 3
- (c) 200 cm²
5. (a) (i) (9, 2) (ii) (7, 5)
- (b) (i) (a) X ialah pembesaran pada pusat (8, 5) dengan faktor skala $\frac{1}{3}$
X is an enlargement about centre (8, 5) with a scale factor of $\frac{1}{3}$
- (b) Y ialah putaran 90° lawan arah jam pada pusat (9, 3)
Y is an anticlockwise rotation of 90° about the centre (9, 3)
- (c) 320 cm²
6. (a) (i) (3, 2) (ii) (9, 0)
- (b) (i) (a) X ialah pembesaran pada pusat (4, 4) dengan faktor skala $\frac{1}{2}$
X is an enlargement about centre (4, 4) with a scale factor of $\frac{1}{2}$
- (b) Y ialah putaran 90° lawan arah jam pada pusat (5, 7)
Y is an anticlockwise rotation of 90° about the centre (5, 7)
- (c) 105 cm²
7. (a) (i) (2, -1) (ii) (2, 1)
- (b) (i) (a) X ialah translasi $\begin{pmatrix} -3 \\ -3 \end{pmatrix}$
X is a translation $\begin{pmatrix} -3 \\ -3 \end{pmatrix}$
- (ii) Y ialah pembesaran pada pusat (5, 4) dengan faktor skala 2
Y is an enlargement about the centre (5, 4) with a scale factor of 2
- (c) 150 cm²
8. (a) (i) (8, 1) (ii) (6, 5)

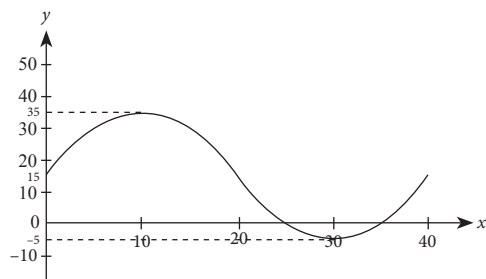
- (b) (i) (a) X ialah pembesaran pada pusat (2, 5) dengan faktor skala $\frac{1}{3}$
X is an enlargement about centre (2, 5) with a scale factor of $\frac{1}{3}$
- (b) Y ialah putaran 90° ikut arah jam pada pusat (5, 4)
Y is a clockwise rotation of 90° about the centre (5, 4)
- (c) 189 cm²

Bab 6 Nisbah dan Graf Fungsi Trigonometri Ratios and Graphs of Trigonometric Functions

1. (a) 0.8480 (b) -0.1201 (c) 0.9004
2. $\frac{1}{2}$
3. 240°, 300°
- 4.

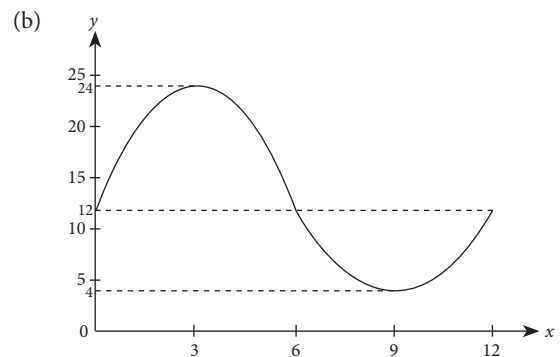


5. -0.7880
6. $-\frac{3}{4}$
7. 0.8192
8. $\frac{\sqrt{28}}{8}$ atau/or 0.6614
9. 0.9536 cm
10. $s = 50 \tan x$
11. (a) (i) 8 (ii) 4 (iii) 6
 (b) $y = 8 \cos 6x + 4$ (c) -2.93
12. (a) (i) 15 (ii) 36 (iii) 25
 (b) $y = 15 \cos 36x + 25$
- (c)



13. (a) $\sin \theta = \frac{1}{\sqrt{2}}$

$\tan \theta = 1$



$y = 12 \sin 30x + 12$

Saat ke-3/Third seconds

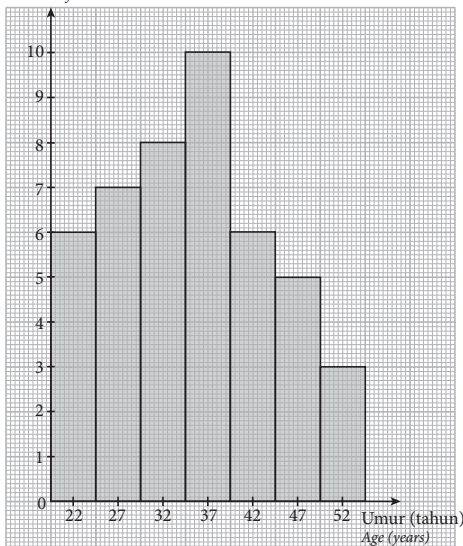
1. (a)

Umur (tahun) Age (years)	Titik tengah Midpoint	Kekerapan Frequency
20 – 24	22	6
25 – 29	27	7
30 – 34	32	8
35 – 39	37	10
40 – 44	42	6
45 – 49	47	5
50 – 54	52	3

(b) (i) 35 – 39

(ii) 35.33

(c) Bilangan pelancong
Number of tourists

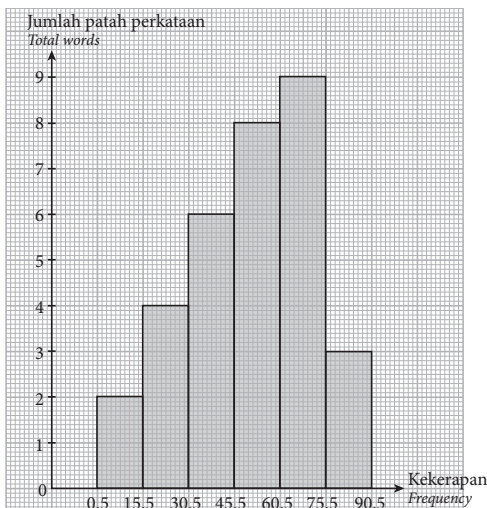


2. (a)

Jumlah patah perkataan ditaip Number of words typed	Kekerapan Frequency	Sempadan atas Upper boundary	Sempadan bawah Lower boundary
1 – 15	2	15.5	0.5
16 – 30	4	30.5	15.5
31 – 45	6	45.5	30.5
46 – 60	8	60.5	45.5
61 – 75	9	75.5	60.5
76 – 90	3	90.5	75.5

(b) 61 – 75

(c)



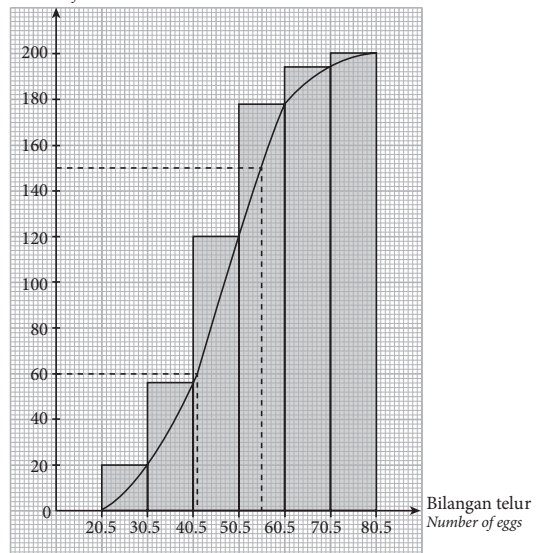
(d) Pencong ke kiri/Skewed to left

3. (a)

Bilangan telur Number of eggs	Kekerapan longgokan Cumulative frequency	Sempadan bawah Lower boundary	Sempadan atas Upper boundary
21 – 30	20	20.5	30.5
31 – 40	56	30.5	40.5
41 – 50	120	40.5	50.5
51 – 60	178	50.5	60.5
61 – 70	194	60.5	70.5
71 – 80	200	70.5	80.5

(b) & (c)

Bilangan ayam
Number of chickens



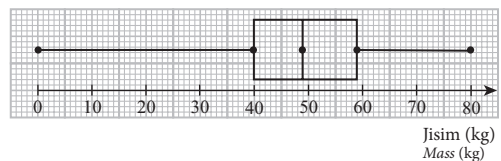
(c) (i) 41.5

(ii) 55.5

4.

- Nilai maksimum/Maximum value = 69
- Kuartil pertama/First quartile = 24
- Median/Median = 33
- Julat antara kuartil/Interquartile range = $Q_3 - Q_1 = 25$
- Bentuk plot kotak = Pencong ke kanan
Shape of box plot = Skewed to right

5. (a)



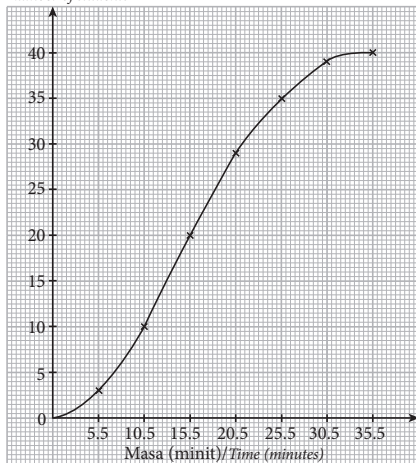
(b) Pencong ke kiri
Skewed to left

6. (a)

Masa (minit) Time (minutes)	Kekerapan Frequency	Kekerapan longgokan Cumulative frequency	Sempadan atas Upper boundary
1 – 5	3	3	5.5
6 – 10	7	10	10.5
11 – 15	10	20	15.5
16 – 20	9	29	20.5
21 – 25	6	35	25.5
26 – 30	4	39	30.5
31 – 35	1	40	35.5

(b) 16

(c) Bilangan murid
Number of students



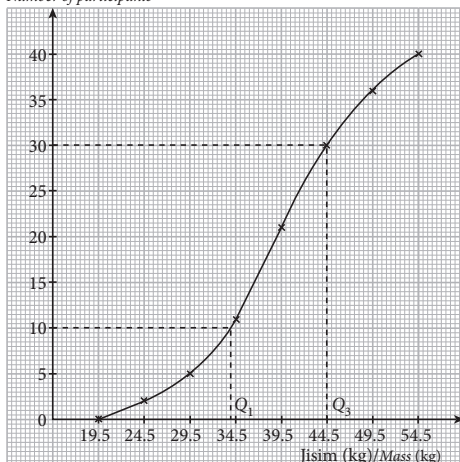
(d) 27.5%

7. (a)

Jisim (kg) Mass (kg)	Kekerapan Frequency	Kekerapan longgokan Cumulative frequency	Sempadan atas Upper boundary
15 – 19	0	0	19.5
20 – 24	2	2	24.5
25 – 29	3	5	29.5
30 – 34	6	11	34.5
35 – 39	10	21	39.5
40 – 44	9	30	44.5
45 – 49	6	36	49.5
50 – 54	4	40	54.5

(b) 35 – 39

(c) Bilangan peserta
Number of participants



(d) (i) 34

(ii) 10.5

Bab 8 Pemodelan Matematik Mathematical Modeling

1. (a) Jumlah pinjaman dan kadar faedah telah diketahui. Bayaran bulanan untuk pinjaman pembiayaan kereta Encik Irfan perlu ditentukan.

The total amount of the loan and the rate of the interest are known. The monthly payment of Encik Irfan's car loan installment need to be determined.

(b) **Andaian/Assumptions:**

- Kadar faedah pinjaman tahunan tidak berubah.
The annual rate interest is unchanged.
- Encik Irfan membayar pinjaman bulanan tepat pada masa supaya tidak dikenakan faedah kompaun.
Encik Irfan repay his monthly installment on time so that he would not be charged of compound interest.

Pemboleh ubah/Variable:

- Jumlah pinjaman, tempoh pembayaran balik pinjaman dalam tahun dan kadar faedah pinjaman.
The total amount of loan, loan repayment period in years and interest rate of the loan.

2. (a) Kereta Puan Badariah menggunakan 4 liter petrol untuk bergerak sejauh 12 km. Jarak yang dilalui oleh keretanya dengan menggunakan 50 liter petrol perlu dicari.

Puan Badariah's car uses 4 litres of petrol to travel for 12 km. The distance travelled of her car by using 50 litres petrol need to be found.

(b) **Andaian/Assumption:**

- Kelajuan kereta adalah sama sepanjang perjalanan.
The speed of the car is the same along the journey.

Pemboleh ubah/Variable:

- Jarak yang dilalui oleh kereta dan isi padu petrol.
The distance travelled by the car and the volume of petrol.

3. **Mengenal pasti dan mendefinisikan masalah**

Identifying and defining the problems

- Karen mendapati populasi bakteria menjadi tiga kali ganda setiap 2 jam.

Karen found that the population of bacteria tripled every 2 hours.

- Bilangan bakteria pada mulanya ialah 6 000.

The number of bacteria in the beginning is 6 000.

Membuat andaian dan mengenal pasti pemboleh ubah

Making assumptions and identify variables

- Isi padu dan suhu bahan tersebut adalah tetap sepanjang eksperimen dijalankan.

The volume and the temperature of the substance are constant during the experiment.

- Biarkan N mewakili bilangan bakteria dan t ialah masa, dalam jam, selepas eksperimen bermula.

Let N be the number of bacteria and t is the time, in hours, after the experiment began.

Mengaplikasi matematik untuk menyelesaikan masalah

Applying mathematics to solve problems

- Jadual dibina untuk mencari bilangan bakteria pada selang setiap dua jam.

Table is constructed to find the number of bacteria every two hours.

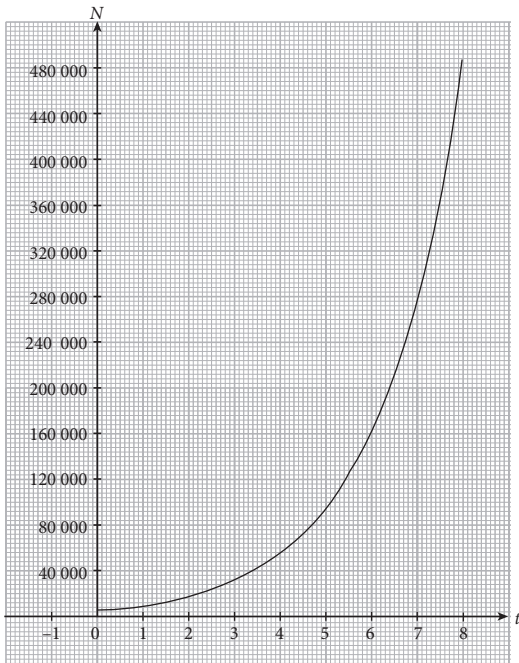
t (hours/jam)	N (unit)
0	6 000
2	$6\,000 \times 3 = 18\,000$
4	$6\,000 \times 3 \times 3 = 54\,000$
6	$6\,000 \times 3 \times 3 \times 3 = 162\,000$
8	$6\,000 \times 3 \times 3 \times 3 \times 3 = 486\,000$

Menentusahkan dan mentafsir penyelesaian dalam konteks masalah berkenaan

Verifying and interpreting the solution in the context of problems

- Satu graf N melawan t dilukis berdasarkan jadual.

A graph N against t is drawn based on the table.



Memurnikan model matematik

Refining the mathematical model

- Model ini tidak dapat dimurnikan lagi kerana maklumat yang diberikan dalam situasi di atas adalah terhad. Model ini tidak sesuai untuk meramalkan perubahan populasi bakteria bagi situasi yang dipengaruhi oleh pelbagai faktor lain.

This model cannot be refined because the information given in the situation is limited. This model is not suitable for predicting the changes in bacteria populations for the situation that affecting other factors.

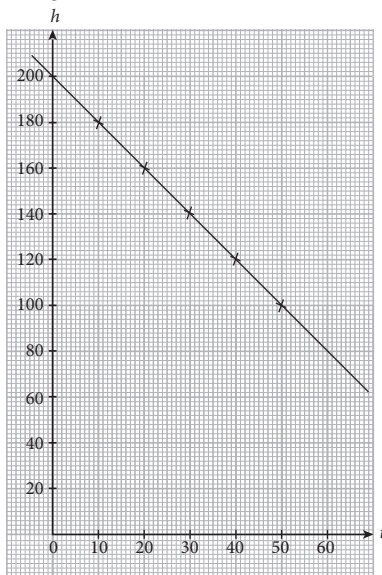
Melaporkan dapatan

Reporting the findings

- Laporan penuh dibuat berdasarkan proses pemodelan matematik.

The complete report is done based on the process of mathematical modeling.

4. (a)



(b) Daripada graf/From the graf,

$$\text{Kecerunan/Gradient} = \frac{200 - 100}{0 - 50} = -2$$

$$\text{Pintasan-}y/y\text{-intercept} = 200$$

Model matematik yang dibentuk ialah $h = -2t + 200$.

The mathematical model is $h = -2t + 200$

- (c) Kadar pengaliran keluar air adalah malar semasa pili dibuka.

The rate of water flow is constant when the tap is open.

[Terima andaian lain yang sesuai]

[Accept other suitable assumption]

Tingkatan 3

Bab 9 Garis Lurus Straight Lines

- (a) $\frac{1}{2}$
(b) $c = 6$
 $y = \frac{1}{2}x + 6$
(c) $x = -12$
- (a) -2
(c) $c = 32; y = -2x + 32$
(b) $x = 3$
(d) $x = 16$
- (a) $m = \frac{3}{2}; x = -\frac{2}{3}$
(b) (i) $2y = 3x - 21$
(ii) $x = 7$
- (a) 8
(c) $y = \frac{2}{3}x + 6; x = -9$
(b) $x = 8$
- (a) $x = 3$
(c) $x = \frac{33}{2}$
(b) $c = -11, y = \frac{2}{3}x - 11$
- (a) $(-15, 7)$
(c) 12 jam 30 minit
12 hours 30 minutes
(b) $y = -\frac{1}{5}x + 4$
- (a) $y = -4$
(b) (i) $(-17, -4)$
(ii) $3y = 4x + 56$
(c) $y = -\frac{12}{5} + 8; x = \frac{10}{3}$

KERTAS MODEL SPM

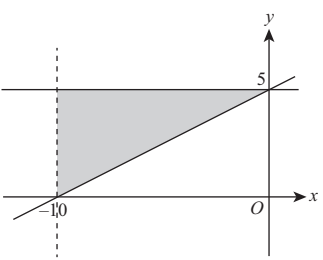
Kertas 1

- | | | | | |
|-------|-------|-------|-------|-------|
| 1. A | 2. B | 3. B | 4. D | 5. D |
| 6. D | 7. B | 8. D | 9. D | 10. A |
| 11. C | 12. D | 13. A | 14. D | 15. A |
| 16. B | 17. D | 18. A | 19. B | 20. D |
| 21. A | 22. A | 23. D | 24. B | 25. A |
| 26. B | 27. C | 28. D | 29. B | 30. D |
| 31. B | 32. B | 33. B | 34. A | 35. B |
| 36. B | 37. C | 38. C | 39. B | 40. D |

Kertas 2

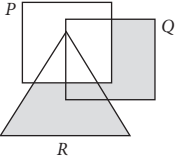
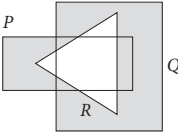
Bahagian A (40 markah)

Soalan	Skema Permarkahan	Markah	Jumlah Markah
1	$4\ 280 + 1\ 300 - 1\ 500 - 850$ $- 1\ 200 - 270 - 300 - 150 - 700$ $= \text{RM}610$ Aliran tunai positif <i>Positive cash flow</i>	2M 1M	3M
2	$\left[18\ 000 \left(1 + \frac{0.025}{4} \right)^{(4)(3)} \right]$ $- 18\ 000$ $= \text{RM}1\ 397.39$	2M 1M	3M

Soalan	Skema Permarkahan	Markah	Jumlah Markah
3	Jumlah insurans yang harus dibeli <i>Amount of required insurance</i> $= \frac{80}{100} \times 200\,000$ $= \text{RM}160\,000$ Jumlah pampasan <i>Total compensation</i> $= \frac{150\,000}{160\,000} \times 30\,000 - 7\,500$ $= \text{RM}20\,625$	1M 2M 1M	4M
4	Hujah sah kerana mengikut salah satu daripada tiga bentuk hujah iaitu Bentuk I. <i>The argument is valid because follow one of three forms of argument which is Form 1.</i> Hujah ini tidak munasabah kerana Premis 1 palsu. <i>This argument is unsound because Premise 1 is false.</i> Alasan diberikan. <i>The reason is given.</i>	1M 1M 1M	3M
5		1M 2M	3M
6	$\sqrt{100} = 10$ $\theta = 360^\circ - \left(\cos^{-1} \frac{2.5}{5}\right)$ $\theta = 300^\circ$	1M 1M 1M	3M
7	$2(3x + 2) + 2(2y + 3) = 78$ $6x + 4 + 4y + 6 = 78$ $6x + 4y = 68$ $(3x + 2) - (2y + 3) = 13$ $3x + 2 - 2y - 3 = 13$ $3x - 2y = 14$	1M 1M	

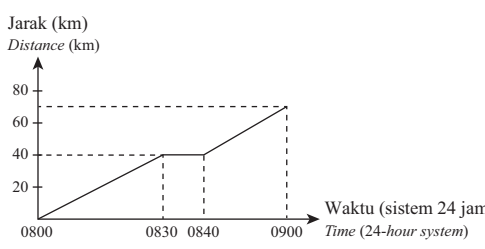
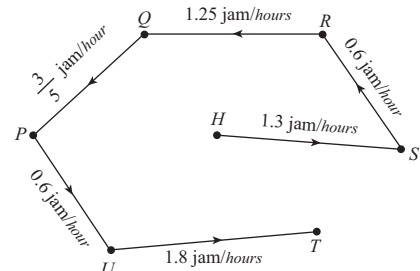
Soalan	Skema Permarkahan	Markah	Jumlah Markah
7	$\begin{bmatrix} 6 & 4 \\ 3 & -2 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 68 \\ 14 \end{bmatrix}$ $\begin{bmatrix} x \\ y \end{bmatrix} = \frac{1}{(6)(-2) - (4)(3)} \begin{bmatrix} -2 & -4 \\ -3 & 6 \end{bmatrix} \begin{bmatrix} 68 \\ 14 \end{bmatrix}$ $x = 8, y = 5$ Luas/Area $= (3(8) + 2)(2(5) + 3)$ $= 338 \text{ cm}^2$	1M 1M 1M 1M	6M
8	(a) $\{(83), (84), (43), (48), (31), (35), (37), (36)\}$ (b) (i) $\{(36)\}$ $\frac{1}{8}$ (ii) $\{(83), (43), (31), (37), (84), (48), (36)\}$ $\frac{7}{8}$	2M 1M 1M 1M 1M	6M
9	$x = 2.25$ $\frac{1}{2} \times (50 + y)(1.5) + (y)(0.75) = y + 78$ $37.5 + 0.75y + 0.75y = y + 78$ $37.5 + 1.5y = y + 78$ $0.5y = 40.5$ $y = 81$	1M 2M 1M	4M
10	(a) $[10 - (-1)] \times 2 = 22 \text{ km}$ (b) $\frac{-1 - (-4)}{8 - (-1)} = \frac{1}{3}$ $10 = \frac{1}{3}(8) + c$ $30 = 8 + 3c$ $3x = 22$ $c = \frac{22}{3}$ $y = \frac{1}{3}x + \frac{22}{3}$ atau/or $3y = x + 22$	1M 1M 1M 1M 1M	5M

Bahagian B
(45 markah)

Soalan	Skema Permarkahan	Markah	Jumlah Markah
11	<p>(a) (i) $(2, 0) \rightarrow (6, -2)$</p> <p>(ii) $\begin{pmatrix} -3 \\ -3 \end{pmatrix}$</p> <p>(b) (i) U = Pembesaran dengan faktor skala $\frac{1}{3}$ pada pusat $(3, 0)$.</p> <p style="text-align: center;"><i>Enlargement with the factor scale of $\frac{1}{3}$ at centre $(3, 0)$.</i></p> <p>V = Putaran 90° ikut arah jam pada pusat $(1, 3)$.</p> <p style="text-align: center;"><i>Rotation on 90° clockwise at centre $(1, 3)$.</i></p> <p>(ii) $Li = \left(\frac{1}{3}\right)^2 \times 360$</p> <p>$Li = \frac{1}{9} \times 360$</p> <p>$Li = 40$</p> <p>Luas kawasan berlorek</p> <p style="text-align: center;"><i>Area of shaded region</i></p> <p>$= 360 - 40$</p> <p>$= 320$</p>	2M 1M 3M 3M 1M 1M	11M
12	<p>(a) (i) </p> <p>(ii) </p> <p>(b) $P = \{16, 25, 36, 49, 64, 81\}$ $Q = \{17, 19, 23, 29, 31\}$ $R = \{19, 23, 35, 49, 81\}$ $(P \cup R) = \{16, 17, 25, 29, 31, 36, 64\}$ $(Q \cap R) = \{19, 23\}$ $(P \cap R) \cup (Q \cap R)$ $= \{16, 17, 19, 23, 25, 29, 31, 36, 64\}$ $n[(P \cap R) \cup (Q \cap R)] = 9$</p> <p>(c) $2x + 4 + 5 + 5x - 2 = 35$ $7x = 28$ $x = 4$</p>	1M 2M 1M 1M 1M 1M 1M	8M
13	<p>(a) (i) $\frac{91 + 65 + 88 + 74 + 84 + 72}{6}$</p> <p>$= 79$</p> <p>(ii) $\sqrt{\frac{91^2 + 65^2 + 88^2 + 74^2 + 84^2 + 72^2}{6} - 79^2}$</p> <p>$= \sqrt{86.667}$</p> <p>$= 9.31$</p> <p>(b) Pasukan/Team X: Min/Mean $= \frac{2(3) + 4(8) + 3(13) + 6(18) + 5(23)}{20}$</p> <p>$= \frac{300}{20}$</p> <p>$= 15$</p>	1M 1M 1M 1M 1M 1M 1M	

Soalan	Skema Permarkahan	Markah	Jumlah Markah
<p>13</p>	<p>Sisihan piawai/Standard deviation</p> $= \sqrt{\frac{2(3^2) + 4(8^2) + 3(13^2) + 6(18^2) + 5(23^2)}{20} - 15^2}$ $= \sqrt{43.5}$ $= 6.595$ <p>Pasukan/Team Y: Min/Mean</p> $= \frac{0(3) + 7(8) + 8(13) + 3(18) + 2(23)}{20}$ $= \frac{260}{20}$ $= 13$ <p>Sisihan piawai/Standard deviation</p> $= \sqrt{\frac{0(3^2) + 7(8^2) + 8(13^2) + 3(18^2) + 2(23^2)}{20} - 13^2}$ $= \sqrt{22.5}$ $= 4.743$ <p>Pasukan Y mempunyai skor yang lebih baik dan konsisten kerana sisihan piawai yang lebih kecil berbanding pasukan X. <i>Team Y has better and more consistent scores because the standard deviation is smaller compared to team X.</i></p>	<p>1M</p> <p>1M</p> <p>1M</p> <p>1M</p>	<p>11M</p>
<p>14</p>	<p>(a) {(P, S), (P, K), (P, O), (P, R), (A, S), (A, K), (A, O), (A, R), (S, S), (S, K), (S, O), (S, R), (T, S), (T, K), (T, O), (T, R), (I, S), (I, K), (I, O), (I, R)}</p> <p>(b) (i) {(T, S), (T, K), (T, R)}</p> $\frac{3}{20}$ <p>(ii) {(P, S), (P, K), (P, R), (A, O), (S, S), (S, K), (S, R), (T, S), (T, K), (T, R), (I, O)}</p> $\frac{11}{20}$ <p>(c) $(1263_8 + 101101_2) - (12031_4 - 412_5)$ $= (691 + 45) - (397 - 107)$ $= 736 - 290$ $= 446$ 545_9</p>	<p>2M</p> <p>1M</p> <p>1M</p> <p>1M</p> <p>1M</p> <p>1M</p> <p>1M</p> <p>2M</p>	<p>10M</p>
<p>15</p>	<p>(a) 0.75 jam/hour</p> <p>(b) $\frac{180}{2}$ $= 90 \text{ km j}^{-1}/\text{km h}^{-1}$</p> <p>(c) 96×1.25 $= 120 \text{ km}$</p> <p>(d) Jarak (km) Distance (km)</p>	<p>1M</p> <p>1M</p> <p>1M</p> <p>1M</p> <p>1M</p> <p>1M</p> <p>1M</p>	<p>8M</p>

Bahagian C
(15 markah)

Soalan	Skema Permarkahan	Markah	Jumlah Markah
16	<p>(a) (i) 4 : 5</p> <p>(ii) $23(12) + x(15) = 546$ $15x = 270$ $x = 18$</p> <p>(b) (i)</p>  <p>(ii) $\frac{40}{30}$ $= \frac{4}{3} \text{ km min}^{-1}$</p> <p>(c) Purata bilangan set menu dijual setiap pekerja <i>Average the number of sets of menus sold by each employee</i> $= \frac{2(12) + 3(15) + 3(17) + 5(20) + 6(23) + 4(25) + 6(27) + 3(29)}{32}$ $= \frac{707}{32}$ $= 22.01$ <p>Kenyataan tersebut tidak benar kerana purata setiap pekerja berjaya menjual 22 set menu sahaja. <i>The statement is not true because every employee managed to sell 22 sets of menus on average.</i></p> <p>(d) Kebarangkalian pekerja gerai X <i>Probability employee of stall X</i> $= \frac{3}{5} \times \frac{4}{7}$ $= \frac{12}{35}$ <p>Kebarangkalian pekerja gerai Y <i>Probability employee of stall Y</i> $= \frac{11}{15} \times \frac{5}{8}$ $= \frac{11}{24}$ <p>Pekerja gerai Y akan menerima bonus kerana kebarangkalian lebih daripada $\frac{2}{5}$. <i>Employee of stall Y will receive the bonus because the probability more than $\frac{2}{5}$.</i></p> </p></p></p>	<p>1M</p> <p>1M</p> <p>1M</p> <p>3M</p> <p>1M</p> <p>2M</p> <p>1M</p> <p>1M</p> <p>1M</p> <p>1M</p> <p>2M</p>	15M
17	<p>(a) (i) 24 minit/minutes</p> <p>(ii) $\frac{1}{2}(16)(1.3)$ $= 10.4 \text{ km}$</p> <p>(b) (i)</p> 	<p>1M</p> <p>1M</p> <p>1M</p> <p>2M</p>	

Soalan	Skema Permarkahan	Markah	Jumlah Markah						
17	(ii) $1.3 + 0.6 + 1.25 + \frac{3}{5} + 0.6 + 1.8$ = 6 jam 9 minit 6 hours 9 minutes	1M							
	(c)	1M							
	<table border="1"> <thead> <tr> <th>Tayar/Tire X</th> <th>Tayar/Tire Y</th> </tr> </thead> <tbody> <tr> <td> Lilitan/Circumference $= 2 \times \frac{22}{7} \times 63$ $= 396 \text{ cm}$ Jarak 1 putaran Distance of 1 rotation $= 3.93 \text{ m}$ </td> <td> Lilitan/Circumference $= 2 \times \frac{22}{7} \times 48$ $= 301.7 \text{ cm}$ Jarak 1 putaran Distance of 1 rotation $= 3.017 \text{ m}$ </td> </tr> <tr> <td> 25 km $= 25\,000 \text{ m}$ Bilangan putaran Number of rotations $= \frac{25\,000}{3.96}$ $= 6\,313.13$ $\sim 6\,313$ </td> <td> 25 km $= 25\,000 \text{ m}$ Bilangan putaran Number of rotations $= \frac{25\,000}{3.017}$ $= 8\,286.38$ $\sim 8\,286$ </td> </tr> </tbody> </table>	Tayar/Tire X		Tayar/Tire Y	Lilitan/Circumference $= 2 \times \frac{22}{7} \times 63$ $= 396 \text{ cm}$ Jarak 1 putaran Distance of 1 rotation $= 3.93 \text{ m}$	Lilitan/Circumference $= 2 \times \frac{22}{7} \times 48$ $= 301.7 \text{ cm}$ Jarak 1 putaran Distance of 1 rotation $= 3.017 \text{ m}$	25 km $= 25\,000 \text{ m}$ Bilangan putaran Number of rotations $= \frac{25\,000}{3.96}$ $= 6\,313.13$ $\sim 6\,313$	25 km $= 25\,000 \text{ m}$ Bilangan putaran Number of rotations $= \frac{25\,000}{3.017}$ $= 8\,286.38$ $\sim 8\,286$	2M
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Beza bilangan putaran Difference the number of rotations $= 8\,286 - 6\,313$ $= 1\,973$	1M								
(d)									
<table border="1"> <thead> <tr> <th>Fitness Top Sdn Bhd</th> <th>Refresh Yourself, USA</th> </tr> </thead> <tbody> <tr> <td> Peralatan pertama First equipment $= \frac{92}{100} \times 800$ $= \text{RM}736$ </td> <td> Dua peralatan Two equipment $= 2 \times \frac{80}{100} \times \left(200 \times \frac{1}{0.23}\right)$ $= \text{RM}1\,391.30$ </td> </tr> <tr> <td> Peralatan kedua Second equipment $= \frac{85}{100} \times 800$ $= \text{RM}680$ </td> <td> Kos penghantaran Shipping cost $= 50 \times \frac{1}{0.23}$ $= \text{RM}217.40$ </td> </tr> <tr> <td> Jumlah/Total $= 736 + 680$ $= \text{RM}1\,416$ </td> <td> Jumlah/Total $= 1\,391.30 + 217.40$ $= \text{RM}1\,608.70$ </td> </tr> </tbody> </table>	Fitness Top Sdn Bhd	Refresh Yourself, USA	Peralatan pertama First equipment $= \frac{92}{100} \times 800$ $= \text{RM}736$	Dua peralatan Two equipment $= 2 \times \frac{80}{100} \times \left(200 \times \frac{1}{0.23}\right)$ $= \text{RM}1\,391.30$	Peralatan kedua Second equipment $= \frac{85}{100} \times 800$ $= \text{RM}680$	Kos penghantaran Shipping cost $= 50 \times \frac{1}{0.23}$ $= \text{RM}217.40$	Jumlah/Total $= 736 + 680$ $= \text{RM}1\,416$	Jumlah/Total $= 1\,391.30 + 217.40$ $= \text{RM}1\,608.70$	2M
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Siew Ling seharusnya membeli peralatan sukan daripada kedai <i>Fitness Top</i> kerana lebih murah dan senang untuk dikembalikan jika terdapat sebarang kerosakan. Siew Ling should buy the equipment from <i>Fitness Top</i> shop because it is cheaper and easy to return if get any damage.	2M								
			15M						