

JAWAPAN

KERTAS SOALAN PEPERIKSAAN SEBENAR SPM 2021-2024

MATEMATIK Dwibahasa

SIJIL PELAJARAN MALAYSIA 2021

KERTAS 1

1 D

A: 1 050 kilometer / kilometre = 1.05×10^3 kilometer / kilometre → Salah / Incorrect

B: 0.75 teraliter / teralitre = 7.5×10^{-1} teraliter / teralitre → Salah / Incorrect

C: 0.089 fentometer / fentometre = 8.9×10^{-2} fentometer / fentometre → Salah / Incorrect

D: 2 160 gigabait / gigabyte = 2.16×10^3 gigabait / gigabyte → Betul / Correct

2 C

A, B dan D menerangkan kelebihan kad kredit.

A, B and D explains the advantages of credit card.

3 D

$P = \text{RM}3\ 000$

$R = 5\%$ atau 0.05 setahun

5% or 0.05 per year

$n = 2$

$t = 5$

$$\begin{aligned}
 MV &= P \left(1 + \frac{r}{n} \right)^{nt} \\
 &= 3000 \left(1 + \frac{0.05}{2} \right)^{2(5)} \\
 &= \text{RM}3\ 840.25
 \end{aligned}$$

4 D

Aset → Menjana pendapatan

Asset → Generate income

Liabiliti → Tidak menjana pendapatan

Liability → Does not generate income

5 D

A: Cukai jalan → Dikenakan cukai kepada pengguna jalan raya yang memiliki kenderaan termasuk motosikal dan kereta.

Road tax → Taxed to road users who own vehicles including motorcycles and cars.

B: Cukai pintu → Dikenakan cukai kepada semua pegangan atau harta tanah.

Property assessment tax → Taxed to all holdings or real estate.

C: Cukai pendapatan → Dikenakan cukai atas pendapatan.

Income tax → Taxed on income.

D: Cukai jualan dan perkhidmatan → Dikenakan cukai terhadap pengguna yang menggunakan perkhidmatan bercukai tertentu seperti perkhidmatan hotel, insurans dan takaful, penyedia makanan dan minuman, telekomunikasi, kad kredit dan sebagainya.

Sale and service tax → Taxed on consumers who use certain taxable services such as hotel services, insurance and takaful, food and beverage providers, telecommunications, credit cards and etc.

6 B

A: Graf berakhir bukan pada jarak 0 km seperti yang ditunjukkan dalam Jadual 1.

The graph ends not at a distance of 0 km as shown in Table 1.

B: Menepati data yang ditunjukkan dalam Jadual 1.

Adhere to the data shown in Table 1.

C: Jarak semakin jauh (meningkat), yang mana tidak sama dengan data dalam Jadual 1 yang menunjukkan jarak semakin dekat (menurun).

The distance is getting further (increasing), which is not the same as the data in Table 1 that shows the distance is getting closer (decreasing).

D: Graf bermula pada jarak 0 km, yang mana tidak sama dengan data dalam Jadual 1 yang bermula pada jarak 3.2 km.

The graph starts at a distance of 0 km, which is not the same as the data in Table 1 that starts at a distance of 3.2 km.

7 C

Graf laju-masa / *Speed-time graph:*

Jarak = Luas bawah graf

Distance = Area under the graph

$$(8 - 2) \times u + \frac{1}{2} \times (10 + u) \times 2 = 220$$

$$6u + 10 + u = 220$$

$$7u = 220 - 10$$

$$u = 30$$

8 B

$R(R, 0)$

$S(S, 0)$

$$f(x) = x^2 - 7x - 8$$

$$0 = x^2 - 7x - 8$$

$$0 = (x + 1)(x - 8)$$

$$x + 1 = 0$$

$$x = -1$$

$$x - 8 = 0$$

$$x = 8$$

Titik R berada pada bahagian negatif pada paksi-x, maka:

Point R is on the negative side of the x-axis, then:

$R(-1, 0)$

Titik S berada pada bahagian positif pada paksi-x, maka:

Point S is on the positive side of the x-axis, then:

$S(8, 0)$

9 B

$$p \propto \frac{1}{\sqrt{q}}$$

$$p = \frac{k}{\sqrt{q}}$$

$$4 = \frac{k}{\sqrt{25}}$$

$$k = 4 \times 5$$
$$= 20$$

$$p = \frac{20}{\sqrt{q}}$$

10 B

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{3 - 0}{0 - (-6)}$$

$$= \frac{3}{6}$$

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

11 D

Faktor skala / Scale factor

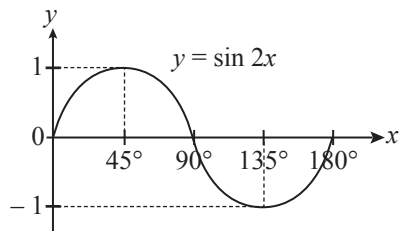
$$= \frac{\text{Imej / Image}}{\text{Objek / Object}}$$

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

$$= 3$$

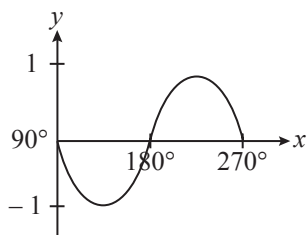
12 C

Graf / Graph $\sin 2x$:



Maka, graf $y = \sin 2x$ bagi $90^\circ \leq x \leq 270^\circ$ adalah

Hence, the graph represents $y = \sin 2x$ for $90^\circ \leq x \leq 270^\circ$ is



13 B

Lokus x bergerak 6 cm dari titik $R =$ titik **A** dan **B**

*Locus x moves 6 cm from point $R =$ point **A** and **B***

Lokus y bergerak jarak sama dari garis PQ dan $SR =$ titik **B** dan **D**

*Locus y moves such that it is equidistance from line PQ and $SR =$ point **B** and **D***

Titik yang memenuhi kedua-dua syarat ialah titik **B**.

*The point that meets both conditions is point **B**.*

14 C

$$VPQ = VQR = VUR = 18$$

$$US = \frac{1}{2}UR$$

$$\therefore k = \frac{1}{2}$$

$$k^2 = \frac{\text{luas imej / area of image}}{\text{luas objek / area of object}}$$

$$\left(\frac{1}{2}\right)^2 = \frac{UST}{18}$$

$$UST = 4.5$$

$$\begin{aligned} \text{Jumlah luas / Total area} &= 3(18) + 4.5 \\ &= 58.5 \text{ cm}^2 \end{aligned}$$

15 B

$$\begin{aligned} PS + RQ &= 100 + 150 \\ &= 250 \end{aligned}$$

16 B

$$\xi = \{10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$$

$$P \cup Q = \{12, 14, 15, 16, 17, 18\}$$

$$(P \cup Q)' = \{10, 11, 13, 19, 20\}$$

17 B

Hujah deduktif:

Deductive argument:

Premis 1: Jika P , maka Q .

Premise 1: If P , then Q .

Premis 2: Bukan Q adalah benar.

Premise 2: Not Q is true.

Kesimpulan: Bukan P adalah benar.

Conclusion: Not P is true.

Premis1: Jika $m \div 8 = -2$, maka $m = -6$.

Premise 1: If $m \div 8 = -2$, then $m = -6$.

Premis 2 : $m = 16$

Premise 2

Kesimpulan: $m \div 8 \neq -2$

Conclusion: $m \div 8 \neq -2$

18 C

A: Julat / Range 23 hingga / to 27 = 5 kali / times

B: Julat / Range 38 hingga / to 38 = 6 kali / times

C: Julat / Range 41 hingga / to 49 = 8 kali / times

D: Julat / Range 50 hingga / to 55 = 5 kali / times

19 B

$$\begin{aligned}\text{Min / Mean} &= \frac{\sum fx}{\sum f} \\ &= \frac{(10.5 \times 2) + (30.5 \times 7) + (50.5 \times 5) + (70.5 \times 11) + (90.5 \times 5)}{2 + 7 + 5 + 11 + 5} \\ &= 57.17\end{aligned}$$

20 B

Kimia / Chemistry:

Lulus / Pass = 0.4

Gagal / Fail = 0.6

Matematik / Mathematics:

Lulus / Pass = 0.7

Gagal / Fail = 0.3

$$0.7 \times 0.4 = 0.28$$

21 A

$$\begin{aligned}\frac{\sqrt{p^{-4} \times q^4}}{p \times p \times q \times q} &= \frac{(p^{-4} \times q^4)^{\frac{1}{2}}}{p^2 \times q^2} \\ &= \frac{p^{-2} \times q^2}{p^2 \times q^2} \\ &= p^{-2-2} q^{2-2} \\ &= p^{-4} q^0 \\ &= p^{-4}\end{aligned}$$

22 A

$$\sqrt{(3.36 \times 10^3)^2 - (3.24 \times 10^3)^2} = 889.9 \text{ cm}$$

$$\begin{aligned}\text{Luas / Area} &= \frac{1}{2} \times (3.24 \times 10^3) \text{ cm} \times 889.9 \text{ cm} \\ &= 1.44 \times 10^6 \text{ cm}^2\end{aligned}$$

23 D

$$m = \frac{\text{mencancang / vertical}}{\text{mengufuk / horizontal}}$$

$$\frac{4}{3} = \frac{2.1}{x}$$

$$x = 1.6$$

$$\begin{aligned}\text{Jarak PR / Distance of PR} &= 4.8 - 1.6 \\ &= 3.2 \text{ cm}\end{aligned}$$

24 C

$$x^2 - 4x = \frac{4}{3} \left(2 - \frac{x}{2} \right)$$

$$3x^2 - 12x = 8 - 2x$$

$$3x^2 - 12x + 2x - 8 = 0$$

$$3x^2 - 10x - 8 = 0$$

$$(3x + 2)(x - 4) = 0$$

$$x = -\frac{2}{3}, \quad x = 4$$

25 B

Graf menunjukkan hubungan \geq . Maka, **B** dan **D** diambil kira.

*The graph shows the relationship of \geq . Then, **B** and **D** are taken into account.*

$$P(-3, -1)$$

$$Q(3, 8)$$

$$\mathbf{B}: 2y \geq 3x + 7$$

Gantikan koordinat titik *P* / Substitute the coordinates of *P*:

$$2(-1) \geq 3(-3) + 7$$

$$-2 \geq -2(\text{Benar / True})$$

Gantikan koordinat titik *Q* / Substitute the coordinates of *Q*:

$$2(8) \geq 3(3) + 7$$

$$16 \geq 16(\text{Benar / True})$$

26 C

$$pq + 1 = q^2 + p$$

$$pq - p = q^2 - 1$$

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

$$p = \frac{q^2 - 1}{q - 1}$$

$$p = \frac{(q - 1)(q + 1)}{q - 1}$$

$$= q + 1$$

27 B

$$h \propto \frac{1}{t}$$

$$t = 40$$

$$h = 1\,250$$

$$h = \frac{k}{t}$$

$$1\,250 = \frac{k}{40}$$

$$k = 50\,000$$

$$h = \frac{50\,000}{t}$$

$$h = \frac{50\,000}{100}$$

$$= 500 \text{ cm}$$

28 D

$$\begin{pmatrix} 3 & 2 \\ -5 & 4 \end{pmatrix} \begin{pmatrix} 1 \\ -x \end{pmatrix} = \begin{pmatrix} -x \\ -17 \end{pmatrix}$$

$$\begin{aligned} (3)(1) + 2(-x) &= -x \\ 3 - 2x + x &= 0 \\ -x &= -3 \\ x &= 3 \end{aligned}$$

$$\begin{aligned} (-5)(1) + (4)(-x) &= -17 \\ -5 - 4x &= -17 \\ x &= \frac{-17 + 5}{-4} \\ x &= 3 \end{aligned}$$

29 D

$$x = \frac{180^\circ - 70^\circ}{2}$$

$$= 55^\circ$$

$$\begin{aligned} y &= 180^\circ - 65^\circ - 55^\circ \\ &= 60^\circ \end{aligned}$$

30 C

$$1 : m$$

$$P = 1\,386$$

$$Q = 154$$

$$\begin{aligned} P: \frac{22}{7} \times r^2 &= 1\,386 \\ r &= 21 \end{aligned}$$

$$\begin{aligned} Q: \frac{22}{7} \times r^2 &= 154 \\ r &= 7 \end{aligned}$$

Imej / Image : Objek / Object

$$= 7 : 21$$

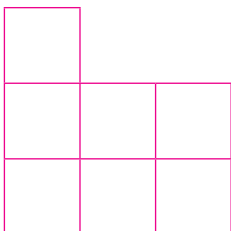
$$= \frac{7}{7} : \frac{21}{7}$$

$$= 1 : 3$$

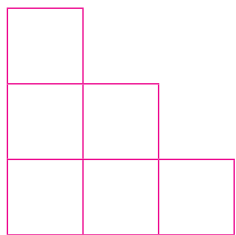
$$\therefore m = 3$$

31 D

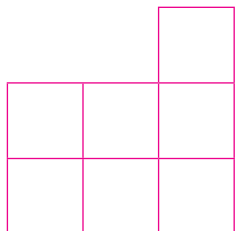
A:



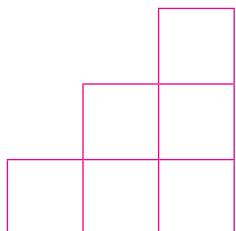
B:



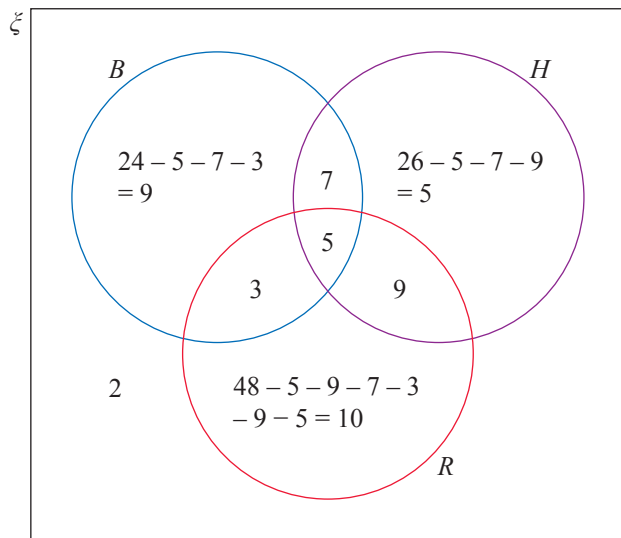
C:



D:



32 D



33 A

$$MM : MT = 2 : 1$$

$$60 - 8 - 11 - 10 - 10 = 21$$

$$3 \text{ bahagian / parts} = 21$$

$$1 \text{ bahagian / part} = \frac{21}{3}$$
$$= 7$$

$$MM = 2 \times 7 = 14 \text{ orang murid / students}$$

$$MT = 1 \times 7 = 7 \text{ orang murid / students}$$

Jumlah kutipan yuran / Total fee collection

$$= (8 \times 3) + (11 \times 5) + (10 \times 5) + (10 \times 5) + (14 \times 4) + (7 \times 6)$$
$$= 277$$

34 C

{GE, GT, EG, ET, TE, TG}

35 A

Harga jualan / Selling price = RM550 000

$$t = 5$$

$$\text{Wang pendahuluan / Deposit} = \frac{10}{100} \times 550\,000$$
$$= 55\,000$$

Jumlah pendapatan / Total income = RM7 200

Perbelanjaan / Expenses = RM4 000

$$7\,200 - 4\,000 - \frac{55\,000}{5 \times 12} = \text{RM}2\,283.33$$

36 (Tidak ada dalam pilihan jawapan / None in the answer choices)

$$(17 \times 100) \times (4 \times 100) = 680\,000$$

$$680\,000 - 2(200 \times 200) - (100 \times 300) = 570\,000$$

$$\frac{570\,000}{28\,000} = 20.36$$

\therefore 21 tin cat / can of paint

37 B

$$\begin{pmatrix} 5 & -2 \\ -7 & 3 \end{pmatrix} \begin{pmatrix} 2 \\ 3 \end{pmatrix} = \frac{1}{2x} \begin{pmatrix} 16 \\ -20 \end{pmatrix}$$

$$5(2) + (-2)(3) = \frac{16}{2x}$$

$$10 - 6 = \frac{16}{2x}$$

$$2x = 4$$

$$x = 2$$

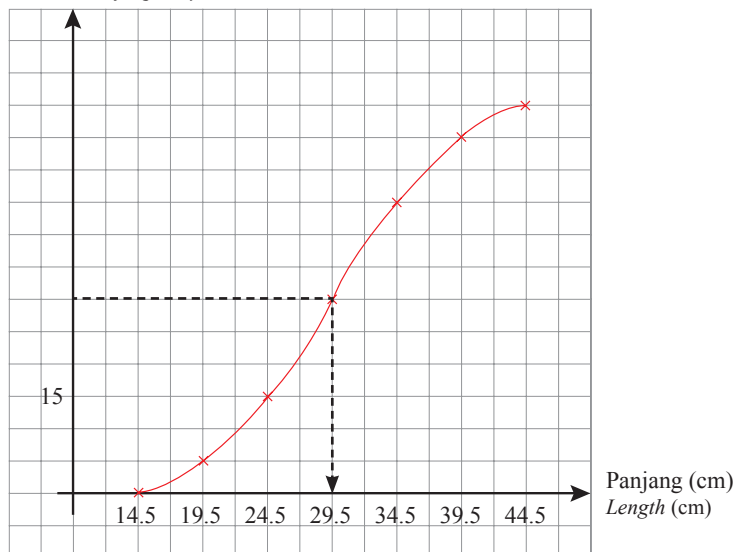
38 C

$$\frac{25}{100} \times x = 15$$

$$x = 60$$

$$\frac{1}{2} \times 60 = 30$$

Kekerapan longgokan
Cumulative frequency



Median panjang / Median of length = 29.5

39 D

$$\begin{aligned} \text{Isnin / Monday} &: 100110_2 \\ &= (1 \times 2^5) + (1 \times 2^2) + (1 \times 2) \\ &= 38 \text{ pengunjung / visitors} \end{aligned}$$

Selasa / Tuesday: 55 pengunjung / visitors

$$\begin{aligned} \text{Rabu / Wednesday} &: 2201_3 \\ &= (2 \times 3^3) + (2 \times 3^2) + (1 \times 3^0) \\ &= 73 \text{ pengunjung / visitors} \end{aligned}$$

$$\begin{aligned} \text{Khamis / Thursday} &: 124_8 \\ &= (1 \times 8^2) + (2 \times 8^1) + (4 \times 8^0) \\ &= 84 \text{ pengunjung / visitors} \end{aligned}$$

$$\begin{aligned} \text{Purata / Mean} &= \frac{38 + 55 + 73 + 84}{4} \\ &= 62.5 \text{ pengunjung / visitors} \end{aligned}$$

40 B

- I: Kelebihan menggunakan kad kredit
The advantages of using credit card
 II: Kelemahan menggunakan kad kredit
The disadvantages of using credit card
 III: Kelemahan menggunakan kad kredit
The disadvantages of using credit card
 IV: Kelebihan menggunakan kad kredit
The advantages of using credit card

∴ I dan / and IV

KERTAS 2

Bahagian A

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
1	4 sisi / sides = $4x + 4$ 1 sisi / side = $\frac{4x + 4}{4} = x + 1$ Luas / Area = $(x + 1)(x + 1)$	1 1	2
2	(a) Beza di antara jujukan / <i>Difference between a sequence</i> $= \left(\frac{5}{3} - \frac{1}{3} \right) \div 2$ $= \frac{2}{3}$ $J = \frac{1}{3} + \frac{2}{3}$ $= \frac{3}{3}$ $= 1$ $K = \frac{5}{3} + \frac{2}{3}$ $= \frac{7}{3}$	1	3
	(b) Tambah $\frac{2}{3}$ kepada nombor yang sebelumnya. <i>Add $\frac{2}{3}$ to the previous number.</i>	1	
3	$m = 0.25$ (a) Kecerunan / <i>Gradient</i> = $\frac{\text{Mengufuk / Horizontal}}{\text{Mencancang / Vertical}}$ $0.25 = \frac{1.25}{x}$ $x = 6$ $\tan \theta = \frac{1.5}{6}$ $\theta = 14.04^\circ$	1 1	4
	(b) $\sqrt{1.5^2 + 6^2} = 6.185$	2	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
4	Sofa $M = (5 \times 9^2) + (4 \times 9^1) + (7 \times 9^0) = 448$ Sofa $N = (2 \times 6^3) + (4 \times 6^2) + (4 \times 6^1) + (1 \times 6^0) = 601$ \therefore Sofa M lebih murah. / <i>Sofa M is cheaper.</i>	2 1	3
5	(a) $N \propto \frac{D}{P}$ $N = \frac{kD}{P}$ $480 = \frac{k(5\,000)}{80}$ $k = 7.68$ $N = \frac{7.68D}{P}$	1 1	4
	(b) $D = 75\,000, P = 80$ $N = \frac{(7.68)(75\,000)}{80} = 7\,200$	2	
6	(a) Gaji / <i>Salary</i> = RM56 000 Derma / <i>Donation</i> = RM200 Pendapatan bercukai / <i>Chargeable income</i> $= 56\,000 - 200 - 9\,000 - 1\,800 - 3\,000$ $= \text{RM}42\,000$	1 1	5
	(b) Kos perubatan selepas deduktibel / <i>Medical cost after deductible</i> $= 27\,000 - 2\,000$ $= \text{RM}25\,000$ Kos yang ditanggung oleh Athar / <i>Cost borne by Athar</i> $= \left(\frac{10}{100} \times 25\,000\right) + 2\,000$ $= \text{RM}4\,500$	2 1	
7	(a) $y = 3$	1	5
	(b) (i) $13 = \sqrt{(8-3)^2 + (2-h)^2}$ $169 = 25 + 4 - 4h + h^2$ $0 = h^2 - 4h - 140$ $0 = (h-14)(h+10)$ $h-14=0 \quad h+10=0$ $h=14 \quad h=-10$ \therefore Koordinat rumah Liza ialah $(-10, 30)$. Maka, h adalah -10 . <i>The coordinate of Liza's house is $(-10, 30)$. Then, h is -10.</i>	1 1	
	(ii) $y = mx + c$ $m = \frac{8-3}{2-(-10)}$ $= \frac{5}{12}$ $3 = \frac{5}{12}(2) + c$ $c = \frac{13}{6}$ $y = \frac{5}{12}x + \frac{13}{6}$	1 1	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
8	$\frac{7+5}{x} = \frac{1}{3}$ $\frac{12}{x} = \frac{1}{3}$ <p>Jumlah murid / <i>Number of students</i> = 3×12 = 36</p> <p>Bilangan murid yang lulus / <i>Number of students who passed</i> = $36 - 12$ = 24</p> <p>Lelaki / <i>Boys</i> = $\frac{24}{3} \times 1$ = 8</p> <p>Perempuan / <i>Girls</i> = $\frac{24}{3} \times 2$ = 16</p> <p>$\therefore x = 8, y = 16$</p>	1 1 1 1	4
9	<p>(a) Pendapatan / <i>Income</i> = 3 200 Perbelanjaan / <i>Expenses</i> = 1 950</p> <p>Baki / <i>Balance</i> = $3\,200 - 1\,950$ = RM1 250</p> <p>$14\,400 \div 12$ bulan / <i>months</i> = RM1 200</p> <p>Muaz dapat mencapai matlamat kewangannya kerana baki gajinya melebihi simpanan yang diperlukan untuk beliau membeli motosikal tersebut. <i>Muaz was able to achieve his financial goals because his remaining salary exceeded the savings required for him to buy the motorcycle.</i></p> <p>(b) Pendapatan / <i>Income</i> = 4 000 Perbelanjaan / <i>Expenses</i> = 3 200</p> <p>Aliran tunai positif / <i>Positive cash flow</i> = 1 850 Baki pendapatan / <i>Balance income</i> = $4\,000 - 3\,200$ = 800</p> <p>Pendapatan yang diperoleh daripada kerja sambilan = $1\,850 - 800$ <i>Income earned from the part time job</i> = RM1 050</p>	1 1 1	4
10	<p>(a) $\frac{(42 \times 3) + (47 \times 6) + (52 \times m) + (57 \times 16) + (62 \times 10) + (67 \times 4)}{3 + 6 + m + 16 + 10 + 4} = 55.6$</p> $\frac{2\,208 + 52m}{39 + m} = 55.6$ $2\,208 + 52m = 2\,168.4 + 55.6m$ $2\,208 - 2\,168.4 = 55.6m - 52m$ $39.6 = 3.6m$ $m = 11$ <p>(b) $\sigma^2 =$</p> $\frac{(3 \times 42^2) + (6 \times 47^2) + (11 \times 52^2) + (16 \times 57^2) + (10 \times 62^2) + (4 \times 67^2)}{3 + 6 + 11 + 16 + 10 + 4} - 55.6^2$ $= \frac{156\,670}{50} - 55.6^2$ $= 42.04$	2 1 2 1	6

Bahagian B

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
11	<p>(a) DEF dan DGF, DAB dan DCB, EFJ dan GFJ. DEF and DGF, DAB and DCB, EFJ and GFJ. (Terima mana-mana jawapan yang munasabah) (Accept any reasonable answer)</p>	2	
	<p>(b)</p>	2	
	<p>(c) (i) Q: Pantulan pada garis $x = 3$. Reflection on line $x = 3$.</p> <p>(ii) $k = \frac{6}{3}$ $= 2$</p> <p>P: Pembesaran pada titik J dengan faktor skala, $k = 2$. Enlargement at point J with the scale factor, $k = 2$.</p>	3	9

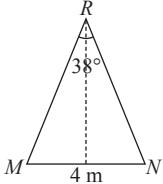
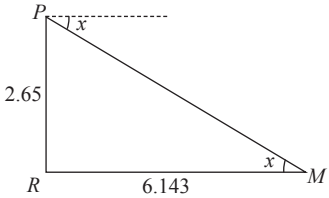
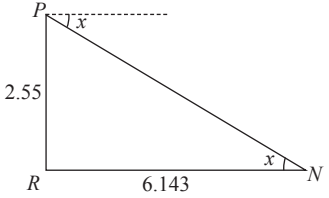
No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
12	<p>(a), (b)</p>	<p>4</p> <p>5</p>	9
13	<p>(a) Joe = {2, 3, 5, 7}</p> <p>Karl = {2, 4, 6, 8}</p> <p>Liam = {1, 3, 5, 15}</p>	<p>1</p> <p>1</p> <p>1</p>	
	<p>(b) (i)</p> <p>(ii) $(K \cup L)' \rightarrow (K \cup L)' \cup J'$</p>	<p>3</p> <p>2</p>	8

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
14	<p>(a) $p = \text{piza} / \text{pizza}, c = \text{kek cawan} / \text{cup cake}$</p> $3p + 6c = 45 \dots\dots\dots ①$ $7p = 45 + c$ $7p - c = 45 \dots\dots\dots ②$ $\begin{pmatrix} 3 & 6 \\ 7 & -1 \end{pmatrix} \begin{pmatrix} p \\ c \end{pmatrix} = \begin{pmatrix} 45 \\ 45 \end{pmatrix}$ $\begin{pmatrix} p \\ c \end{pmatrix} = \frac{1}{3(-1) - 6(7)} \begin{pmatrix} -1 & -6 \\ -7 & 3 \end{pmatrix} \begin{pmatrix} 45 \\ 45 \end{pmatrix}$ $\begin{pmatrix} p \\ c \end{pmatrix} = \frac{1}{-45} \begin{pmatrix} -1(45) + (-6)(45) \\ -7(45) + 3(45) \end{pmatrix}$ $\begin{pmatrix} p \\ c \end{pmatrix} = \frac{1}{-45} \begin{pmatrix} -315 \\ -180 \end{pmatrix}$ $\begin{pmatrix} p \\ c \end{pmatrix} = \begin{pmatrix} 7 \\ 4 \end{pmatrix}$ <p>$p = 7, c = 4$</p>	<p>1</p> <p>1</p> <p>2</p> <p>2</p>	
	<p>(b) Baucar ketiga / <i>Third voucher</i> = $125 - 45 - 45$ = 35</p> $4p + 2c$ $= (4 \quad 2) \begin{pmatrix} p \\ c \end{pmatrix}$ $= (4 \quad 2) \begin{pmatrix} 7 \\ 4 \end{pmatrix}$ $= 4(7) + 2(4)$ $= 36$ <p>Nilai belian ialah RM36 manakala nilai baucar ialah RM35. <i>The purchase value is RM36 while the voucher value is RM35.</i> ∴ Nilai baucar tidak mencukupi. / <i>Voucher value is insufficient.</i></p>	<p>1</p> <p>1</p> <p>1</p>	<p>9</p>

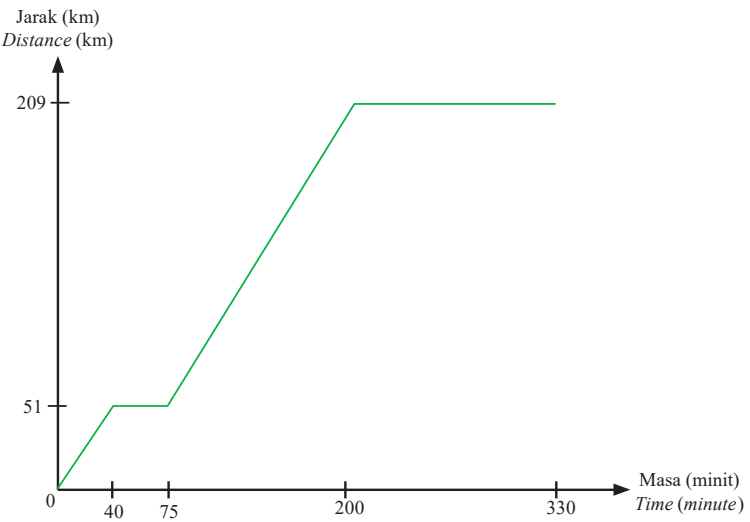
No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
15	(a) $x + y \leq 36$ $x \leq y$	1	
	(b), (d)(ii)	1	
		4	
	(c) Tidak kerana titik (14, 10) terletak di luar kawasan rantau berlorek. <i>No because point (14, 10) lies outside the shaded region.</i>	2	
	(d) (i) $x + y \leq 24$	1	
(ii) Rujuk graf di atas. / <i>Refer the above graph.</i>	1	10	

Bahagian C

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
16	(a) (i) $23 - 18 = 5$ minit / <i>minutes</i>	1	
	(ii) Laju purata / <i>Average speed</i> = $\frac{\text{Jumlah jarak} / \text{Total distance}}{\text{Jumlah masa} / \text{Total time}}$	1	
	$= \frac{10}{45}$ $= 0.22 \text{ km min}^{-1}$	1	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	<p>(b) Protein = 250 Natrium / Sodium – kalsium / calcium, $(N - K) = 36^\circ$ Lemak / Fat = 11°</p> <p>$N - K = 36^\circ$ ① $11^\circ + 30^\circ + N + K + 209^\circ = 360^\circ$ ②</p> <p>$N = 36^\circ + K$ $11^\circ + 30^\circ + (36^\circ + K) + K + 209^\circ = 360^\circ$ $286^\circ + 2K = 360^\circ$ $K = 37^\circ$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	
	<p>(c)</p>  <p>$RM = RN = \frac{2}{\sin 19^\circ}$ $= 6.143 \text{ m}$</p>  <p>$\tan x = \frac{2.65}{6.143}$ $x = \tan^{-1}\left(\frac{2.65}{6.143}\right)$ $= 23.33^\circ$</p>  <p>$\tan x = \frac{2.55}{6.143}$ $x = \tan^{-1}\left(\frac{2.55}{6.143}\right)$ $= 22.54^\circ$ $23.33^\circ - 22.54^\circ = 0.79^\circ$</p>	<p>1</p> <p>1</p> <p>1</p>	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	<p>(d) $\bar{x}_S = \frac{254 + 251 + 256 + 260 + 253}{5}$ $= 254.8$</p> <p>$\sigma_S = \sqrt{\frac{254^2 + 251^2 + 256^2 + 260^2 + 253^2}{5} - (254.8)^2}$ $= 3.059$</p> <p>$\bar{x}_T = \frac{252 + 255 + 258 + 254 + 255}{5}$ $= 254.8$</p> <p>$\sigma_T = \sqrt{\frac{252^2 + 255^2 + 258^2 + 254^2 + 255^2}{5} - (254.8)^2}$ $= 1.939$</p> <p>Raket T. Nilai sisihan piawai yang lebih kecil menunjukkan laju bola tangkis lebih konsisten apabila menggunakan raket T. <i>Racquet T. A smaller standard deviation value indicates that the shuttlecock speed is more consistent when using racquet T.</i></p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>15</p>
17	<p>(a) (i) $5 : 35$ $= \frac{5}{5} : \frac{35}{5}$ $= 1 : 7$</p> <p>(ii) $\frac{7}{35} = \frac{1}{5}$</p> <p>(b) $g = \text{guru} / \text{teacher}, m = \text{murid} / \text{student}$</p> <p>$g = m + 40$ ① $5g + 35m = 3\,000$ ②</p> <p>$5(m + 40) + 35m = 3\,000$ $5m + 200 + 35m = 3\,000$ $40m = 3\,000 - 200$ $m = 70$</p> <p>$g = 70 + 40$ $g = 110$</p> <p>Yuran yang perlu dibayar oleh seorang murid ialah RM70, manakala seorang guru ialah RM110. <i>The fee that has to be paid by a student is RM70, while a teacher is RM110.</i></p> <p>(c) (i) Graf laju-masa : jarak = luas bawah graf <i>Graph speed-time : distance = area under a graph</i></p> <p>Luas bawah graf / <i>Area under a graph</i> $= \left(\frac{1}{2} \times 90 \times \frac{[(36-8)+40]}{60} \right) + \left(\frac{1}{2} \times 80 \times \frac{[(200-75)+(191-79)]}{60} \right)$ $= 51 + 158$ $= 209 \text{ km}$</p>	<p>1</p> <p>2</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks	
	<p>(ii)</p> 	3	15	
	<p>(d) Cikgu Linda: $P \rightarrow T \rightarrow S \rightarrow U \rightarrow R \rightarrow Q$ $= 15 + 21 + 20 + 11 + 9$ $= 76$</p> <p>Cikgu Kumar: $P \rightarrow Q \rightarrow R \rightarrow U \rightarrow S \rightarrow T$ $= 13 + 9 + 11 + 20 + 21$ $= 74$</p> <p>Pendapat Cikgu Kumar lebih baik kerana tempoh masa untuk sampai lebih pendek iaitu 74 minit. Ini sesuai dengan matlamat mereka yang mahu menjimatkan masa perjalanan. <i>Cikgu Kumar's opinion is better because the arrival time is shorter which is 74 minutes. This suits the purpose of those who want to save travel time.</i></p>	1 1 1		

KERTAS 1

1 B

$$\begin{aligned} 16 \left(\sqrt[3]{\frac{1}{64}} \right)^{-1} &= 16 \left(\frac{1}{4} \right)^{-1} \\ &= 16(4) \\ &= 64 \end{aligned}$$

2 C

$$\begin{aligned} 5.4 \times 10^3 + 4.7 \times 10^2 &= 5.4 \times 10^3 + 0.47 \times 10^3 \\ &= (5.4 + 0.47) \times 10^3 \\ &= 5.87 \times 10^3 \end{aligned}$$

3 D

$$\begin{aligned} \text{A: } 615_{10} - 46_{10} &= 569_{10} \\ \text{B: } 615_9 - 46_9 &= 558_9 \\ \text{C: } 615_8 - 46_8 &= 547_8 \\ \text{D: } 615_7 - 46_7 &= 536_7 \end{aligned}$$

4 C

$$\begin{aligned} \text{RM}156.25 \times 2.5\% &= \text{RM}3.90625 \\ &= \text{RM}3.91 \text{ (tiga angka bererti / three significant figures)} \end{aligned}$$

5 D

$$\begin{aligned} \text{A: } 5.49 \times 10^{-4} &= 0.000549 \\ \text{B: } 5.48 \times 10^{-3} &= 0.00548 \\ \text{C: } 5.48 \times 10^3 &= 5\,480 \\ \text{D: } 5.49 \times 10^4 &= 54\,900 \\ 53\,770, 54\,320, 54\,900, 55\,420 \end{aligned}$$

6 A

$$\begin{aligned} \text{Modal Azhar / Azhar's capital} &= \text{RM}(5.3 \times 10^4) \\ \text{Modal Baba / Baba's capital} &= \text{RM}(5.3 \times 10^4) - \text{RM}5\,000 \\ \text{Modal Chew / Chew's capital} &= \text{RM}(5.3 \times 10^4) - \text{RM}5\,000 \\ \text{Jumlah modal / Total amount of capital} &= \text{RM}(1.7 \times 10^5) \\ \text{Modal Dolly / Dolly's capital} & \\ &= \text{RM}(1.7 \times 10^5) - \text{RM}(5.3 \times 10^4) - [\text{RM}(5.3 \times 10^4) - \text{RM}5\,000] - [\text{RM}(5.3 \times 10^4) - \text{RM}5\,000] \\ &= \text{RM}(17 \times 10^4) - \text{RM}(5.3 \times 10^4) - [\text{RM}(5.3 \times 10^4) - \text{RM}(0.5 \times 10^4)] - [\text{RM}(5.3 \times 10^4) - \text{RM}(0.5 \times 10^4)] \\ &= \text{RM}(17 \times 10^4) - \text{RM}(5.3 \times 10^4) - \text{RM}(4.8 \times 10^4) - \text{RM}(4.8 \times 10^4) \\ &= \text{RM}[(17 - 5.3 - 4.8 - 4.8) \times 10^4] \\ &= \text{RM}(2.1 \times 10^4) \end{aligned}$$

7 D

$$\begin{aligned} m &= \frac{1+n}{3-2n} \\ m(3-2n) &= 1+n \\ 3m-2mn &= 1+n \\ -n-2mn &= 1-3m \\ n+2mn &= 3m-1 \\ n(1+2m) &= 3m-1 \\ n &= \frac{3m-1}{1+2m} \end{aligned}$$

8 C

$$\begin{aligned}2m + 5 &= 7(1 - m) \\2m + 5 &= 7 - 7m \\2m + 7m &= 7 - 5 \\9m &= 2 \\m &= \frac{2}{9}\end{aligned}$$

9 D

$$\begin{aligned}y - 6 &< 2(2y + 3) \\y - 6 &< 4y + 6 \\y - 4y &< 6 + 6 \\-3y &< 12 \\y &> \frac{12}{-3} \\y &> -4\end{aligned}$$

10 A

$$\begin{aligned}-3x + 5 &\leq 6 + x \\-3x - x &\leq 6 - 5 \\-4x &\leq 1 \\x &\geq \frac{1}{-4} \\x &\geq -\frac{1}{4}\end{aligned}$$

11 C

$$\begin{aligned}j &\propto \frac{1}{p} \\j &= \frac{k}{p} \\120 &= \frac{k}{6.5} \\k &= 780 \\j &= \frac{780}{p}\end{aligned}$$

12 B

$$\begin{aligned}p &\propto \sqrt{w} \\p &= k\sqrt{w} \\k &= \frac{p}{\sqrt{w}}\end{aligned}$$

A:

$$k = \frac{4}{\sqrt{9}} = \frac{4}{3}$$

$$k = \frac{3}{\sqrt{16}} = \frac{3}{4}$$

Nilai-nilai k adalah berbeza.

The values of k are different.

B:

$$k = \frac{3}{\sqrt{9}} = \frac{3}{3} = 1$$

$$k = \frac{4}{\sqrt{16}} = \frac{4}{4} = 1$$

Nilai-nilai k adalah sama.

The values of k are same.

C:

$$k = \frac{3}{\sqrt{9}} = \frac{3}{3} = 1$$

$$k = \frac{5}{\sqrt{16}} = \frac{5}{4}$$

Nilai-nilai k adalah berbeza.

The values of k are different.

D:

$$k = \frac{4}{\sqrt{9}} = \frac{4}{3}$$

$$k = \frac{6}{\sqrt{16}} = \frac{3}{2}$$

Nilai-nilai k adalah berbeza.

The values of k are different.

13 C

$$\begin{aligned} \begin{bmatrix} -7 & 4 \\ 0 & 8 \end{bmatrix} + 3 \begin{bmatrix} 2 & 6 \\ 1 & -1 \end{bmatrix} &= \begin{bmatrix} -7 & 4 \\ 0 & 8 \end{bmatrix} + \begin{bmatrix} 6 & 18 \\ 3 & -3 \end{bmatrix} \\ &= \begin{bmatrix} -7 + 6 & 4 + 18 \\ 0 + 3 & 8 + (-3) \end{bmatrix} \\ &= \begin{bmatrix} -1 & 22 \\ 3 & 5 \end{bmatrix} \end{aligned}$$

14 B

$$\sphericalangle VST = 25^\circ$$

$$\sphericalangle PTS = 25^\circ + 30^\circ = 55^\circ$$

$$\sphericalangle TPQ = 180^\circ - 30^\circ = 150^\circ$$

$$\begin{aligned} x + y &= [(5 - 2) - 180^\circ] - 55^\circ - 150^\circ - 100^\circ \\ &= 235^\circ \end{aligned}$$

15 B

$$NR = 10 \text{ cm} - 4 \text{ cm} = 6 \text{ cm}$$

$$MR = \frac{4}{5} \times 10 \text{ cm} = 8 \text{ cm}$$

$$\begin{aligned} \tan x^\circ &= -\frac{NR}{MR} \\ &= -\frac{6}{8} \\ &= -\frac{3}{4} \end{aligned}$$

16 B

$$\sphericalangle POM = 2 \times 34^\circ = 68^\circ$$

$$\begin{aligned} x &= 180^\circ - 68^\circ - 90^\circ \\ &= 22^\circ \end{aligned}$$

17 D

A: Bukan teselasi kerana terdapat bintang yang tidak berulang.

Not a tessellation because there are non-repeating spots.

B: Bukan teselasi kerana terdapat bintang yang tidak berulang.

Not a tessellation because there are non-repeating spots.

C: Bukan teselasi kerana terdapat bintang yang tidak berulang.

Not a tessellation because there are non-repeating spots.

D: Merupakan teselasi yang terdiri daripada bintang yang berulang.

It is a tessellation consisting of repeating spots.

18 C

$$P = \{A, B\}$$

$$P' = \{C, D\}$$

$$Q = \{D\}$$

$$Q' = \{A, B, C\}$$

$$R = \{B, C, D\}$$

$$\begin{aligned} P' \cap Q' \cap R &= \textcircled{C} \text{ D} \cap \text{A B} \cap \textcircled{C} \cap \text{B C D} \\ &= \textcircled{C} \cap \text{B} \textcircled{C} \text{ D} \\ &= \text{C} \end{aligned}$$

19 A

$$\begin{aligned} \text{Min} / \text{Mean} &= \frac{2.3 + 4.5 + 5.7 + 5.7 + 3.8}{5} \\ &= 4.4 \end{aligned}$$

20 B

Bilangan bungkusan cendol yang dijual

The number of packet of cendol sold

$$= 60 + 65 + 50 + 55 + 80$$

$$= 310$$

Bilangan bungkusan susu soya yang dijual

The number of packet of soy milk sold

$$= 40 + 50 + 40 + 40 + 60$$

$$= 230$$

Katakan harga sebungkus cendol / *Let the price of a packet of cendol = x*

$$310x + 230(\text{RM}1.20) = \text{RM}834$$

$$310x + \text{RM}276 = \text{RM}834$$

$$310x = \text{RM}558$$

$$x = \frac{\text{RM}558}{310}$$

$$x = \text{RM}1.80$$

21 A

$$\begin{aligned} m^3 \times n \times p^7 \times m^3 \times n^{-2} \times p^3 &= m^{3+3} \times n^{1+(-2)} \times p^{7+3} \\ &= m^6 \times n^{-1} \times p^{10} \\ &= \frac{m^6 p^{10}}{n} \end{aligned}$$

22 B

$$y = ax^n - x + c$$

$$y = (0)x^n - x + 3$$

$$y = -x + 3$$

$$\text{Kecerunan} / \text{Gradient} = -1$$

$$\text{Pintasan-}y / \text{y-intercept} = 3$$

23 B

Dari graf, laju seragam ialah 60 km j⁻¹.

From the graph, the uniform speed is 60 km h⁻¹.

24 C

$$\text{A: } y > 2x + 4$$

$$\text{B: } y < 2x + 4$$

$$\text{C: } y \geq 2x + 4$$

$$\text{D: } y \leq 2x + 4$$

25 A

$$A^{-1} = \frac{1}{ad-bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$$

$$M^{-1} = \frac{1}{(10)(1) - q(-3)} \begin{pmatrix} p & 3 \\ 2 & 10 \end{pmatrix}$$

$$-bc = -q(-3)$$

$$-6 = 3q$$

$$q = -2$$

$$p = d$$

$$p = 1$$

26 C

$$T \propto \sqrt{L}$$

$$T = k\sqrt{L}$$

$$3 = k\sqrt{36}$$

$$k = \frac{3}{6}$$

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

$$T = \frac{\sqrt{L}}{2}$$

27 D

$$\tan \theta = \frac{5}{12}$$

$$\frac{XY}{YZ} = \frac{5}{12}$$

$$XZ^2 = XY^2 + YZ^2$$

$$= 5^2 + 12^2$$

$$= 169$$

$$XZ = 13$$

Diberi $XZ = 26$. Oleh itu, $13 \times 2 = 26$.

Given $XZ = 26$. Thus, $13 \times 2 = 26$.

$$YZ = 12 \times 2$$

$$= 24 \text{ cm}$$

28 A

$$\sphericalangle SOQ = 2 \times 52^\circ = 104^\circ$$

$$\sphericalangle PSO = 180^\circ - 60^\circ = 120^\circ$$

$$x = 360^\circ - 90^\circ - 104^\circ - 120^\circ$$

$$= 46^\circ$$

29 B

$$\text{Skala} = \frac{\text{Ukuran lukisan berskala}}{\text{Ukuran objek}}$$

$$\text{Scale} = \frac{\text{Measurement of scale drawing}}{\text{Measurement of object}}$$

$$\frac{1}{8} = \frac{10}{SR}$$

$$SR = 80 \text{ cm}$$

$$PS / QR = \frac{4\,000}{80}$$

$$= 50 \text{ cm}$$

$$\text{Perimeter} = 50 + 50 + 80 + 80$$

$$= 260 \text{ cm}$$

30 C

A mempunyai jarak lebih daripada 4 cm dari titik L dan titik M

A has distance more than 4 cm from point L and M

B mempunyai jarak lebih daripada 4 cm dari titik M

B has distance more than 4 cm from point M

C mempunyai jarak kurang daripada 4 cm dari setiap titik J , titik M dan titik L

C has distance less than 4 cm from each of the points J , M and L

D mempunyai jarak lebih daripada 4 cm dari titik J

D has distance more than 4 cm from point J

31 C

– Terdapat rantau persilangan antara set P dan set Q .

There is a region of intersection between set P and set Q .

– Terdapat rantau kesatuan antara persilangan set P dan set Q , dengan set R .

There is a region of union between the intersection of set P and set Q , with set R .

$(P \cap Q) \cup R$

32 D

Mod / Mode = 170

$x = 171$

33 A

$P = 10\,000$, $r = 0.05$, $n = 4$, $t = 2$

$$MV = P \left(1 + \frac{r}{n} \right)^{nt}$$

$$= 10\,000 \left(1 + \frac{0.05}{4} \right)^{(4)(2)}$$

$$= 10\,000(1.104486101)$$

$$= 11\,044.86$$

Faedah / Interest = RM11 044.86 – RM10 000

$$= \text{RM}1\,044.86$$

34 D

Skim pinjaman emas / Gold loan scheme

$$\text{Faedah untuk 7 tahun / Interest for 7 years} = \text{RM}10\,000 \times \frac{6}{100} \times 7$$
$$= \text{RM}4\,200$$

$$\text{Jumlah bayaran balik / Total repayment} = \text{RM}10\,000 + \text{RM}4\,200$$
$$= \text{RM}14\,200$$

$$\text{Ansuran bulanan / Monthly installment} = \frac{\text{RM}14\,200}{84}$$
$$= \text{RM}169.05$$

Skim pinjaman premium mempunyai ansuran bulanan yang lebih rendah.

Premium loan scheme has lower monthly installment.

$$\text{Beza ansuran bulanan / Difference of monthly installment} = \text{RM}169.05 - \text{RM}150$$
$$= \text{RM}19.05$$

$$\text{Penjimatan / Savings} = \text{RM}19.05 \times 84$$
$$= \text{RM}1\,600.20 \approx \text{RM}1\,600$$

35 B

Katakan kos hamper pertama / Let the cost of the first hamper = x

x , $2x$, $4x$, $8x$, $16x$, $32x$

$$x + 2x + 4x + 8x + 16x + 32x = 63x$$

$$63(\text{RM}30) = \text{RM}1\,890$$

36 A

$$\sin 212^\circ = -0.5299192642$$

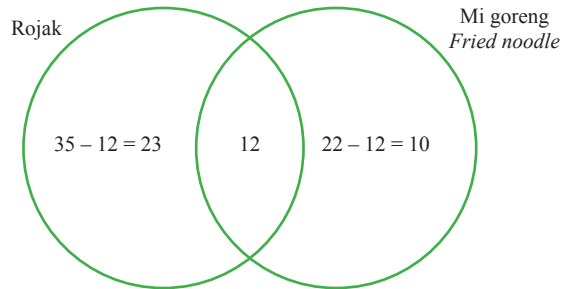
A: $\sin 328^\circ = -0.5299192642$

B: $\sin 302^\circ = -0.8480480962$

C: $\sin 244^\circ = -0.8987940463$

D: $\sin 238^\circ = -0.8480480962$

37 B



Bilangan pelanggan yang suka satu jenis makanan sahaja

The number of customers who like one type of food only

$$= 23 + 10$$

$$= 33$$

38 D

$$P' = (7, 5)$$

$$P = (7 - 5, 5 + 2)$$

$$= (2, 7)$$

$$P = \mathbf{D}$$

39 D

A: Peristiwa ini tidak dipengaruhi oleh kesudahan yang telah berlaku sebelum ini.

The event is not affected by the outcome that had already occurred previously.

B: Peristiwa ini tidak dipengaruhi oleh kesudahan yang telah berlaku sebelum ini.

The event is not affected by the outcome that had already occurred previously.

C: Peristiwa ini tidak dipengaruhi oleh kesudahan yang telah berlaku sebelum ini.

The event is not affected by the outcome that had already occurred previously.

D: Peristiwa ini dipengaruhi oleh kesudahan yang telah berlaku sebelum ini.

The event is affected by the outcome that had already occurred previously.

40 B

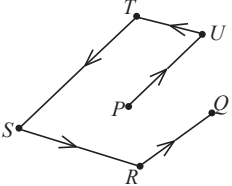
Pelepasan cukai meliputi caruman Kumpulan Wang Simpanan Pekerja (KWSP), rawatan perubatan dan yuran pengajian.

The individual tax rebate consists of contributions to the Employees Provident Fund (EPF), medical treatment and education fees.

Bahagian A

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
1	<p>Katakan bilangan jualan majalah pada Januari = j Let the number of magazine sales in January = j</p> <p>Katakan bilangan jualan majalah pada Februari = f Let the number of magazine sales in February = f</p> <p>Katakan bilangan jualan majalah pada Mac = m Let the number of magazine sales in March = m</p> <p>$m = 4f$① $f + m = 2j$②</p> <p>Gantikan $m = 4f$ dan $j = 400$ ke dalam persamaan ②. Substitute $m = 4f$ and $j = 400$ into equation ②.</p> <p>$f + 4f = 2(400)$ $5f = 800$ $f = 160$</p> <p>$m = 4(160)$ $= 640$</p> <p>$j + f + m = 400 + 160 + 640$ $= 1\ 200$</p> <p style="text-align: center;">atau / or</p> <p>$m = 4f$① $f + m = 2j$② $m - 4f = 0$③ ③ - ②</p> <p>$-5f = 2j$ $5f = 2(400)$ $f = 160$</p> <p>$m = 4(160)$ $= 640$</p> <p>$j + f + m = 400 + 160 + 640$ $= 1\ 200$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>5</p>
2	<p>(a) $x = 10$</p> <p>(b) $J = (0, 8)$ $K = (10, 13)$ $M = (10, 0)$</p> <p>$m_{JK} = \frac{13 - 8}{10 - 0}$ $= \frac{1}{2}$</p> <p>$m_{JK} = m_{MN}$ $y = mx + c$</p> <p>$0 = \frac{1}{2}(10) + c$ $c = -5$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	$y = \frac{1}{2}x + (-5)$ $y = \frac{x}{2} - 5$	1	4
3	<p>(a) $\frac{\text{Luas sektor} / \text{Area of sector}}{\pi j^2} = \frac{\theta}{360^\circ}$</p> $\frac{115.5}{\left(\frac{22}{7}\right)^2} = \frac{360^\circ - 240^\circ}{360^\circ}$ $j^2 = 110.25$ $j = 10.5$	1 1	4
	<p>(b) $\frac{\text{Panjang lengkok} / \text{Arc length}}{2\pi j} = \frac{\theta}{360^\circ}$</p> $\frac{\text{Panjang lengkok} / \text{Arc length}}{2\left(\frac{22}{7}\right)(10.5)} = \frac{120^\circ}{360^\circ}$ <p>Panjang lengkok minor $LM = 22$ cm The minor arc length of LM</p>	1 1	
4	$MV = P\left(1 + \frac{r}{n}\right)^{nt}$ $= 10\,000 \left(1 + \frac{0.03}{4}\right)^{(4)(2)}$ $= 10\,615.99$ <p>Jumlah faedah yang diperoleh / The total interest received = RM10 615.99 – RM10 000 = RM615.99</p>	1 1 1	3
5	$\frac{1}{2} \times \text{tapak} \times \text{tinggi} = \text{luas segi tiga}$ $\frac{1}{2} \times \text{base} \times \text{height} = \text{area of triangle}$ $\frac{1}{2}(x)(2+x) = 7.5$ $x^2 + 2x - 15 = 0$ $(x-3)(x+5) = 0$ <p>$x = 3, x = -5$ $x > 0, x = 3$</p> $y = 2(2+x)$ $= 2(2+3)$ $= 10 \text{ cm}$	1 1 1 1 1	5
6	<p>(a) Antejadian / Antecedent: $a^2 - b^2 = (a - b)^2$ Akibat / Consequence: $a^2 - b^2 = (a - b)(a + b)$</p> <p>(b) Akas / Converse: Jika / If $a^2 - b^2 = (a - b)(a + b)$, maka / then $a^2 - b^2 = (a - b)^2$</p> <p>Songsangan / Inverse: Jika / If $a^2 - b^2 \neq (a - b)^2$, maka / then $a^2 - b^2 \neq (a - b)(a + b)$</p>	1 1 1 1	4

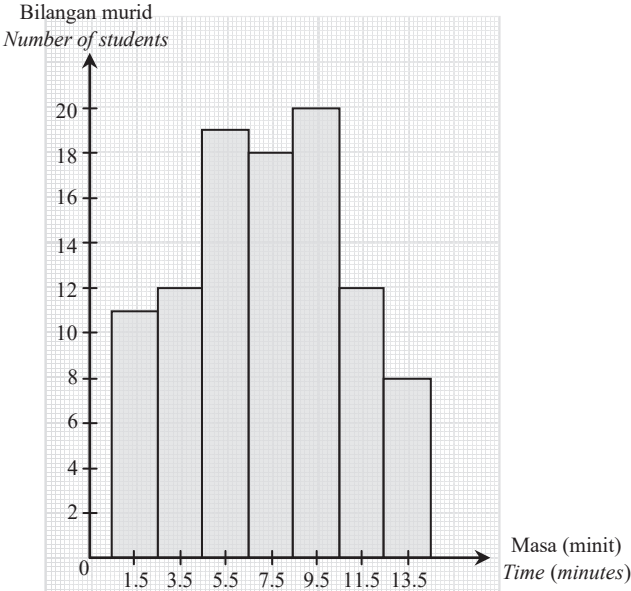
No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
7	<p>Laluan terpendek mesti melalui semua pasar raya, Shortest route must pass through all supermarkets, $P \rightarrow U \rightarrow T \rightarrow S \rightarrow R \rightarrow Q$</p> <p>7.8 km + 3 km + 7 km + 9 km + 5.3 km = 32.1 km</p> 	1 1 1	3
8	<p>(a) Petrol (terima jawapan lain yang munasabah) (accept other reasonable answers)</p> <p>(b) Jumlah pendapatan – Jumlah perbelanjaan Total income – Total expenses = RM1 700 + RM987.60 – (RM2 350 + RM860.90) = –RM523.30 (Aliran tunai negatif / Negative cash flow)</p>	1 2 1	4
9	<p>P(Sekurang-kurangnya seorang ahli perempuan dipilih) P(At least one girl member is chosen)</p> $= \left(\frac{2}{6} \times \frac{1}{5}\right) + \left(\frac{2}{6} \times \frac{4}{5}\right) + \left(\frac{4}{6} \times \frac{2}{5}\right)$ $= \frac{3}{5}$	2 1	3
10	<p>(a) Ubahan langsung Direct variation</p> <p>(b) (i) $y \propto x$ $y = kx$ $15 = k(6)$ $k = \frac{5}{2}$ $y = \frac{5}{2}x$</p> <p>(ii) $40 = \frac{5}{2}x$ $x = 16$</p>	1 1 1 1	5

Bahagian B

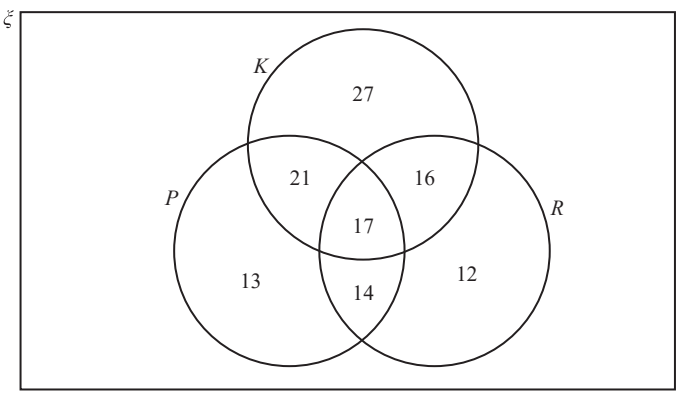
No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
11	<p>(a) Premium asas / Basic premium</p> $= \text{RM}339.10 + \text{RM}26 \times \frac{90\,000 - 1\,000}{1\,000}$ $= \text{RM}2\,653.10$ <p>NCD = RM2 653.10 × 55% = RM1 459.21</p> <p>Premium kasar / The gross premium = RM2 653.10 – RM1 459.21 = RM1 193.89</p>	2 1 1 1 1	

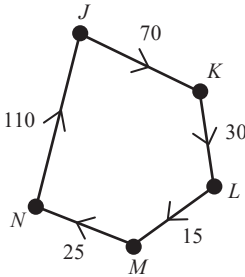
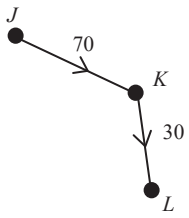
No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	<p>(b) Wang yang dapat dikumpul setiap bulan <i>Money saved every month</i> = Wang saku mingguan + Upah kerja sambilan – Perbelanjaan persekolahan <i>Weekly pocket money + Part-time wages – School expenses</i> = $4 \times \text{RM}50 + 4 \times \text{RM}20 - 20 \times \text{RM}5$ = RM180</p> <p>Jumlah simpanan setelah 6 bulan / <i>Total savings after 6 months</i> = $\text{RM}180 \times 6 + \text{RM}200$ = RM1 280</p> <p>Jumlah simpanan – Yuran penyertaan <i>Total savings – Admission fee</i> = $\text{RM}1\ 280 - \text{RM}1\ 200$ = RM80</p> <p>Jamal dapat mengumpul wang untuk membayar yuran penyertaan ekspedisi itu. <i>Jamal can save enough money to pay the expedition fee.</i></p>	<p>1</p> <p>1</p> <p>1</p>	<p>9</p>
12	<p>(a) (i) 10 minit / <i>minutes</i> (ii) 20 km</p> <p>(b) (i) Laju / <i>Speed</i> = $\frac{50 - 30}{\left(\frac{50}{60}\right)}$ = $24 \text{ km j}^{-1} / \text{km h}^{-1}$</p> <p>(ii) Katakan jarak motosikal Sam dari Parit Buntar pada minit ke 62.5 = J <i>Let distance of Sam's motorcycle from Parit Buntar at 62.5th minute = J</i> $\frac{J - 30}{62.5 - 50} = \frac{50 - 30}{100 - 50}$ $\frac{J - 30}{12.5} = 0.4$ $J - 30 = 5$ $J = 35 \text{ km}$</p> <p>(c) $\frac{50}{\left(\frac{t}{60}\right)} = \frac{50}{\left(\frac{100}{60}\right)} + 10$ $\frac{50}{\left(\frac{t}{60}\right)} = 40$ $\frac{t}{60} = 1.25$ $t = 75 \text{ minit / minutes}$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>2</p> <p>1</p>	<p>9</p>
13	<p>(a) $JK = \begin{pmatrix} 2 \\ 5 \end{pmatrix} \begin{pmatrix} 4 & -3 \end{pmatrix}$ $= \begin{pmatrix} 2 \times 4 & 2 \times (-3) \\ 5 \times 4 & 5 \times (-3) \end{pmatrix}$ $= \begin{pmatrix} 8 & -6 \\ 20 & -15 \end{pmatrix}$ $\therefore 2 \times 2$</p>	<p>1</p> <p>1</p>	

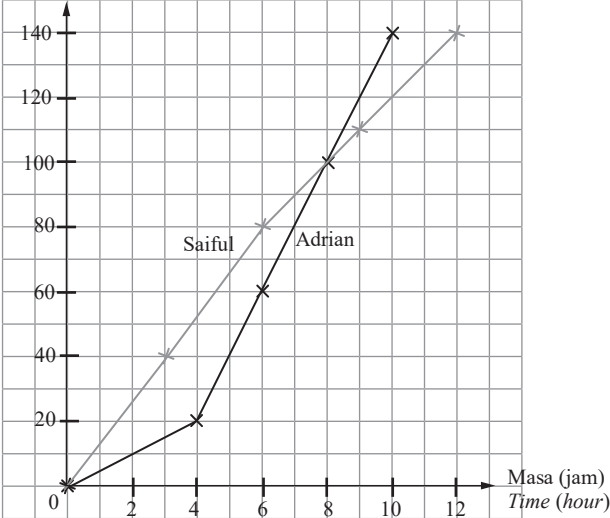
No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks							
	<p>(b) (i) Katakan umur Rokiah / <i>Let the age of Rokiah = R</i> Katakan umur Nuha / <i>Let the age of Nuha = N</i></p> $R = 3N$ $R - 3N = 0 \dots\dots\dots \textcircled{1}$ $\frac{R + N}{2} = 36$ $R + N - 72 = 0 \dots\dots\dots \textcircled{2}$ <p>(ii) $R - 3N = 0$ $R + N = 72$</p> $\begin{pmatrix} 1 & -3 \\ 1 & 1 \end{pmatrix} \begin{pmatrix} R \\ N \end{pmatrix} = \begin{pmatrix} 0 \\ 72 \end{pmatrix}$ $\begin{pmatrix} R \\ N \end{pmatrix} = \frac{1}{(1)(1) - (-3)(1)} \begin{pmatrix} 1 & 3 \\ -1 & 1 \end{pmatrix} \begin{pmatrix} 0 \\ 72 \end{pmatrix}$ $= \frac{1}{4} \begin{pmatrix} 216 \\ 72 \end{pmatrix}$ $= \begin{pmatrix} 54 \\ 18 \end{pmatrix}$ <p>$R = 54$ $N = 18$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>8</p>							
14	<p>(a) (i) Pembesaran pada pusat $(2, -4)$ dengan faktor skala $-\frac{1}{2}$. <i>Enlargement at the centre of $(2, -4)$ with the scale factor of $-\frac{1}{2}$.</i></p> <p>(ii) Putaran 180° pada asalan. <i>Rotation of 180° at the origin.</i></p> <p>(b) Luas imej = $k^2 \times$ Luas objek <i>Area of image = $k^2 \times$ Area of object</i></p> $MNQSTU = \left(-\frac{1}{2}\right)^2 \times 125 \text{ cm}^2$ $= 31.25 \text{ cm}^2$	<p>3</p> <p>3</p> <p>2</p> <p>1</p>	<p>9</p>							
15	<p>(a)</p> <table border="1" data-bbox="232 1281 482 1726"> <thead> <tr> <th data-bbox="232 1281 482 1368">Titik tengah Midpoint</th> </tr> </thead> <tbody> <tr> <td data-bbox="232 1368 482 1426">3.5</td> </tr> <tr> <td data-bbox="232 1426 482 1485">5.5</td> </tr> <tr> <td data-bbox="232 1485 482 1544">7.5</td> </tr> <tr> <td data-bbox="232 1544 482 1603">9.5</td> </tr> <tr> <td data-bbox="232 1603 482 1662">11.5</td> </tr> <tr> <td data-bbox="232 1662 482 1726">13.5</td> </tr> </tbody> </table>	Titik tengah Midpoint	3.5	5.5	7.5	9.5	11.5	13.5	<p>1</p>	
Titik tengah Midpoint										
3.5										
5.5										
7.5										
9.5										
11.5										
13.5										

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	<p>(b) (i) Min / Mean</p> $\frac{(11 \times 1.5) + (12 \times 3.5) + (19 \times 5.5) + (18 \times 7.5) + (20 \times 9.5) + (12 \times 11.5) + (8 \times 13.5)}{100}$ $= 7.34$ <p>(ii) $\sigma = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2}$</p> $= \sqrt{\frac{(11 \times 1.5^2) + (12 \times 3.5^2) + (19 \times 5.5^2) + (18 \times 7.5^2) + (20 \times 9.5^2) + (12 \times 11.5^2) + (8 \times 13.5^2)}{100} - 7.34^2}$ $= 3.49$	<p>1</p> <p>1</p> <p>2</p> <p>1</p>	
	<p>(c)</p> 	<p>4</p>	<p>10</p>

Bahagian C

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
16	<p>(a)</p> 	<p>3</p>	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks								
	<p>(b) (i) $Q = RM655 \times \frac{100}{10}$ $= RM6\ 550$ Jumlah pendapatan / Total income $= RM6\ 550 + RM350$ $= RM6\ 900$</p> <p>(ii) Aliran tunai / Cash flow $= RM6\ 550 + RM350 - RM655 - RM300 - RM900 - RM1\ 050 -$ $RM600 - RM600 - RM500 - RM1\ 000 - RM500$ $= RM795$</p> <p>Aliran tunai Hayati adalah positif, iaitu lebihan RM795. <i>Hayati's cash flow is positive, having surplus RM795.</i></p> <p>(c)</p> <table border="1" data-bbox="235 617 978 917"> <tr> <td data-bbox="235 617 299 689">M</td> <td data-bbox="299 617 978 689">Membayar RM2 800 <i>Pay RM2 800</i></td> </tr> <tr> <td data-bbox="235 689 299 766">A</td> <td data-bbox="299 689 978 766">RM2 800 boleh dibayar dalam 5 bulan <i>RM2 800 can be paid within 5 months</i></td> </tr> <tr> <td data-bbox="235 766 299 842">R</td> <td data-bbox="299 766 978 842">Simpanan 5 bulan adalah sebanyak RM3 975 <i>Savings of 5 months is RM3 975</i></td> </tr> <tr> <td data-bbox="235 842 299 917">T</td> <td data-bbox="299 842 978 917">Dalam 5 bulan <i>Within 5 months</i></td> </tr> </table> <p>Hayati mencapai matlamatnya kerana dia mempunyai lebihan RM1 175 selepas membayar RM2 800. <i>Hayati achieved her goal because she had surplus of RM1 175 after paying RM2 800.</i></p>	M	Membayar RM2 800 <i>Pay RM2 800</i>	A	RM2 800 boleh dibayar dalam 5 bulan <i>RM2 800 can be paid within 5 months</i>	R	Simpanan 5 bulan adalah sebanyak RM3 975 <i>Savings of 5 months is RM3 975</i>	T	Dalam 5 bulan <i>Within 5 months</i>	<p>1</p> <p>1</p> <p>1</p> <p>2</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>15</p>
M	Membayar RM2 800 <i>Pay RM2 800</i>										
A	RM2 800 boleh dibayar dalam 5 bulan <i>RM2 800 can be paid within 5 months</i>										
R	Simpanan 5 bulan adalah sebanyak RM3 975 <i>Savings of 5 months is RM3 975</i>										
T	Dalam 5 bulan <i>Within 5 months</i>										
17	<p>(a) (i)</p>  <p>(Terima mana-mana jawapan yang munasabah) <i>(Accept any reasonable answers)</i></p> <p>(ii)</p>  <p>(Terima mana-mana jawapan yang munasabah) <i>(Accept any reasonable answers)</i></p>	<p>3</p> <p>1</p>									

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
(b) (i)	<p>Jarak (km) Distance (km)</p>  <p>Masa (jam) Time (hour)</p> <p>(ii) Laju / Speed = $\frac{140 - 110}{12 - 9}$ = 10 km j⁻¹ / km h⁻¹</p> <p>(iii) 100 km</p>	3	
(c) (i)	<p>RM30 000 – RM600 = RM29 400 RM29 400 × $\frac{20}{100}$ + RM600 = RM6 480</p> <p>(ii) RM0 Kos rawatan RM450 adalah kurang daripada deduktibel RM600. <i>The treatment cost of RM450 is less than the deductible of RM600.</i></p>	1 1 1 1 1	15

KERTAS 1

1 D

$$7(-15 + 20) + \frac{3}{5} \div 2.5 = 35 + 0.24$$

$$= \frac{881}{25}$$

2 D

A: 1, 4, 9, 16, ...

B: 2, 4, 6, 8, ...

C: 3, 6, 9, 12, ...

D: 4, 8, 16, 32, ...

3 B

$$\frac{3^8 \times 2^4}{12} = 8\,748$$

A: $3^7 \times 2 = 4\,374$

B: $3^7 \times 2^2 = 8\,748$

C: $3^9 \times 2^2 = 78\,732$

D: $3^9 \times 2^6 = 1\,259\,712$

4 C

A: 3 029 016 = 3.03 juta / millions

B: 2 905 421 = 2.91 juta / millions

C: 4 260 572 = 4.26 juta / millions

D: 5 118 396 = 5.12 juta / millions

5 D

$$1 \times 2^3 + 1 \times 2^2 + 1 \times 2^0 = 1101_2$$

6 A

$$245_8 = 165_{10}$$

$$165 \times \frac{100}{60} = 275$$

$$275_{10} = 423_8$$

8	275	- 3	↑
8	34	- 2	
8	4	- 4	
	0		

7 C

Wang pendahuluan = RM63 000 – RM50 000

Down payment

$$= \text{RM}13\,000$$

Jumlah minimum simpanan = (RM13 000 – RM10 500) ÷ 5

Minimum amount of the saving

$$= \text{RM}2\,500 \div 5$$

$$= \text{RM}500$$

8 D

Jumlah cukai pintu = kadar cukai pintu × nilai tahunan

$$\begin{aligned} \text{Total amount of the property assessment tax} &= \text{property assessment tax rate} \times \text{annual value} \\ &= 1.5 \times 6\% \times \text{RM5 820} \\ &= \text{RM523.80} \end{aligned}$$

9 D

Premium asas = RM151.20

Basic premium

$$\text{Premium kasar} = \text{RM151.20} \times \frac{55}{100}$$

Gross premium

$$= \text{RM83.16}$$

10 D

$$\begin{aligned} (x + 3y)(y - 3x) &= xy - 3x^2 + 3y^2 - 9xy \\ &= 3y^2 - 8xy - 3x^2 \end{aligned}$$

11 A

$$V = \pi r^2 h$$

$$r^2 = \frac{V}{\pi h}$$

$$r = \sqrt{\frac{V}{\pi h}}$$

12 B

$$OR = \frac{3}{4} OS$$

$$OR = \frac{3}{4} (8)$$

$$OR = 6$$

$$m = -\frac{\text{pintasan-}y / y\text{-intercept}}{\text{pintasan-}x / x\text{-intercept}}$$

$$= -\frac{6}{8}$$

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

13 C

$$y = ax^2 + 9x + c$$

$$y = -x^2 + 9x - 18$$

$$y = -(x^2 - 9x + 18)$$

$$y = -(x - 3)(x - 6)$$

$a = -1$, bentuk / shape 

$x = 3$ atau / or $x = 6$

14 A

$2x$ lebih berat daripada $y + 5$.

$2x$ is heavier than $y + 5$.

15 C

A: $y \leq 0$ dan $y \geq -x$ adalah salah.

$y \leq 0$ and $y \geq -x$ are wrong.

B: $y \leq 0$, $y \geq -x$, $y < x - 3$ dan $x < 5$ adalah salah.

$y \leq 0$, $y \geq -x$, $y < x - 3$ and $x < 5$ are wrong.

D: $y \geq -x$, $y < x - 3$ dan $x < 5$ adalah salah.

$y \geq -x$, $y < x - 3$ and $x < 5$ are wrong.

16 B

$$\text{Kadar perubahan laju} = -\frac{v-0}{12-3}$$

The rate of change of speed

$$-14\frac{2}{3} = -\frac{v}{9}$$

$$\frac{44}{3} = \frac{v}{9}$$

$$v = 132 \text{ m s}^{-1}$$

17 D

$$x \propto y^2$$

$$x = ky^2$$

$$\frac{2}{5} = k\left(\frac{1}{2}\right)^2$$

$$\frac{2}{5} = k\left(\frac{1}{4}\right)$$

$$k = \frac{8}{5}$$

$$x = \frac{8}{5}y^2$$

18 C

$$R \propto \frac{1}{j^2}$$

$$R = \frac{k}{j^2}$$

$$0.5 = \frac{k}{0.1^2}$$

$$k = \frac{1}{200}$$

$$R = \frac{1}{200j^2}$$

$$2 = \frac{1}{200j^2}$$

$$j^2 = \frac{1}{400}$$

$$j = \sqrt{\frac{1}{400}}$$

$$j = \frac{1}{20}$$

$$j = 0.05$$

19 A

Katakan tinggi = t ,

Katakan isi padu = v ,

Katakan jejari = j ,

Let height

Let volume

Let radius

$$t \propto \frac{v}{j^2}$$

$$t = \frac{kv}{j^2}$$

$$7 = \frac{k(269.5)}{(3.5)^2}$$

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

$$t = \frac{7v}{22j^2}$$

$$21 = \frac{7v}{22j^2}$$

$$21 = \frac{7(1\,996.5)}{22j^2}$$

$$j^2 = 30.25$$

$$j = \sqrt{30.25}$$

$$j = 5.5 \text{ cm}$$

20 A

$$M + \begin{bmatrix} 4 & 6 \\ -3 & -15 \end{bmatrix} = \begin{bmatrix} 17 & -10 \\ 6 & -5 \end{bmatrix}$$

$$M = \begin{bmatrix} 17 & -10 \\ 6 & -5 \end{bmatrix} - \begin{bmatrix} 4 & 6 \\ -3 & -15 \end{bmatrix}$$

$$M = \begin{bmatrix} 17-4 & -10-6 \\ 6-(-3) & -5-(-15) \end{bmatrix}$$

$$M = \begin{bmatrix} 13 & -16 \\ 9 & 10 \end{bmatrix}$$

21 A

$$P = Q$$

$$\begin{bmatrix} 5 & x+y \\ x & z \end{bmatrix} = \begin{bmatrix} 5 & 8 \\ 6 & x-y \end{bmatrix}$$

$$x = 6$$

$$x + y = 8$$

$$6 + y = 8$$

$$y = 8 - 6$$

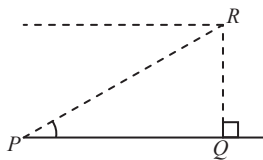
$$y = 2$$

$$z = x - y$$

$$z = 6 - 2$$

$$z = 4$$

22 A



$\angle QPR$

23 B

$$\text{Isi padu kon} = \frac{1}{3} \pi r^2 h$$

$$\text{Volume of cone} = \frac{1}{3} \pi r^2 h$$

$$\text{Isi padu hemisfera} = \frac{2}{3} \pi r^3$$

$$\text{Volume of hemisphere} = \frac{2}{3} \pi r^3$$

Isi padu gabungan pepejal

Volume of the combined solid

$$\begin{aligned} &= \frac{1}{3} \pi j^2 t + \frac{2}{3} \pi j^3 \\ &= \frac{1}{3} \left(\frac{22}{7} \right) (3)^2 (7) + \frac{2}{3} \left(\frac{22}{7} \right) (3)^3 \\ &= 66 + 56 \frac{4}{7} \\ &= 122 \frac{4}{7} \text{ cm}^3 \end{aligned}$$

24 C

$$\begin{aligned} x &= \angle L J N + \angle J L M \\ &= 60^\circ + 32^\circ \\ &= 92^\circ \end{aligned}$$

25 D

$P \rightarrow S$: Pantulan / Reflection
 $S \rightarrow R$: Translasi / Translation

26 A

$$k = \frac{\text{panjang sisi imej / a side of an image}}{\text{panjang sisi objek / a side of an object}}$$

$$k = \frac{3}{6}$$

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

Arah bertentangan, $\therefore k = -\frac{1}{2}$
Opposite direction

27 C

$$\sin x = -\frac{\sqrt{3}}{2}$$

$$x = -60^\circ$$

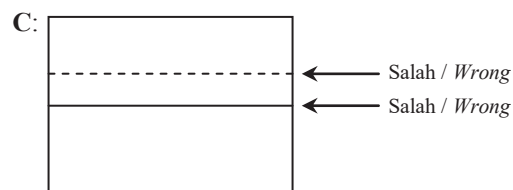
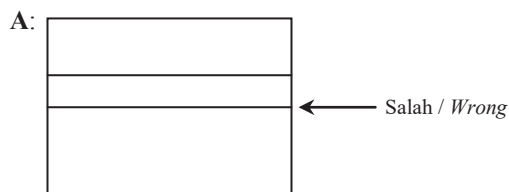
$$x = 180^\circ - 60^\circ$$

$$x = 120^\circ$$

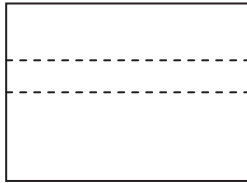
$$\tan 60^\circ = \frac{m}{n}$$

$$m = n \tan 60^\circ$$

28 B



D:



← Salah / Wrong

29 D

A: $(a - b)^2 = a^2 - b^2$ (Palsu / False)

B: $m - 7 = 4$ (Bukan pernyataan / Not a statement)

C: $(-2)^2 = -4$ (Palsu / False)

D: $\{3, 6, 9\} \cap \{9, 16\} = \{9\}$ (Benar / True)

30 B

	Bentuk III Form III
Premis 1 <i>Premise 1</i>	Jika p , maka q <i>If p, then q</i>
Premis 2 <i>Premise 2</i>	Bukan q adalah benar <i>Not q is true</i>
Kesimpulan <i>Conclusion</i>	Bukan p adalah benar <i>Not p is true</i>

$p: x = 3$

$q: x + 2 = 5$

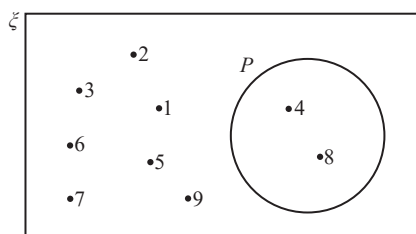
\therefore Jika $x = 3$ maka $x + 2 = 5$

If $x = 3$ then $x + 2 = 5$

31 C

$\zeta = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$

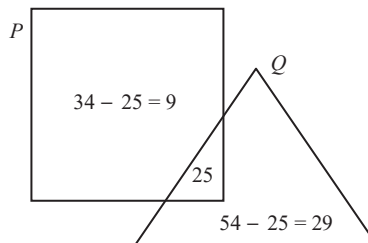
Set $P = \{4, 8\}$



32 A

$$n(P) + n(Q) = 34 + 54 = 88$$

$$n(P \cap Q) = 88 - n(P \cup Q) = 88 - 63 = 25$$



33 C

$$\begin{aligned} \text{A: } P_1 \rightarrow P_2 \rightarrow P_3 \rightarrow P_7 \\ &= 70 \text{ km} + 40 \text{ km} + 30 \text{ km} \\ &= 140 \text{ km} \end{aligned}$$

$$\begin{aligned} \text{B: } P_1 \rightarrow P_2 \rightarrow P_6 \rightarrow P_7 \\ &= 70 \text{ km} + 90 \text{ km} + 60 \text{ km} \\ &= 220 \text{ km} \end{aligned}$$

$$\begin{aligned} \text{C: } P_1 \rightarrow P_4 \rightarrow P_2 \rightarrow P_7 \\ &= 40 \text{ km} + 50 \text{ km} + 80 \text{ km} \\ &= 170 \text{ km} \end{aligned}$$

$$\begin{aligned} \text{D: } P_1 \rightarrow P_4 \rightarrow P_5 \rightarrow P_7 \\ &= 40 \text{ km} + 30 \text{ km} + 50 \text{ km} \\ &= 120 \text{ km} \end{aligned}$$

34 A

$$\begin{aligned} \text{Sudut sektor} &= \frac{18.42}{9.18 + 18.42 + 1.36} \times 360^\circ \\ \text{Angle of sector} &= 229^\circ \end{aligned}$$

35 B

Skor <i>Score</i>	2	3	4	5
Kekerapan <i>Frequency</i>	3	8	7	4

$$\begin{aligned} \text{Min skor baharu} &= \frac{(2 \times 3) + (3 \times 8) + (4 \times 7) + (5 \times 4)}{3 + 8 + 7 + 4} \\ \text{New mean score} &= \frac{78}{22} \\ &= 3.55 \end{aligned}$$

36 B

Kebarangkalian memilih sebiji guli bukan berwarna hijau / *Probability of choosing marble that is not green*

$$\begin{aligned} &= \frac{6 + 4}{6 + 4 + 9} \\ &= \frac{10}{19} \end{aligned}$$

37 D

Kotak *Q* tidak mengandungi bola biru.

Box Q does not consist of blue balls.

38 D

$$\begin{aligned} x + 5 + x + 2x + 3 &= 40 \\ 4x + 8 &= 40 \\ 4x &= 32 \\ x &= 8 \end{aligned}$$

$$\begin{aligned} \text{Kebarangkalian peserta mengambil bahagian dalam kedua-dua kuiz} &= \frac{8}{40} \\ \text{Probability of the participant takes part in both quizzes} &= \frac{1}{5} \end{aligned}$$

39 B

A: Titik 60 dan 80 adalah salah

Points 60 and 80 are wrong

C: 65 bukan median

65 is not a median

D: Titik 35 dan 85 adalah salah

Points 35 and 85 are wrong

40 B

$$\text{Persentil ke-40} = \frac{40}{100} \times 60$$

40th percentile

$$= 24$$

Dari graf, markah ialah 61.5.

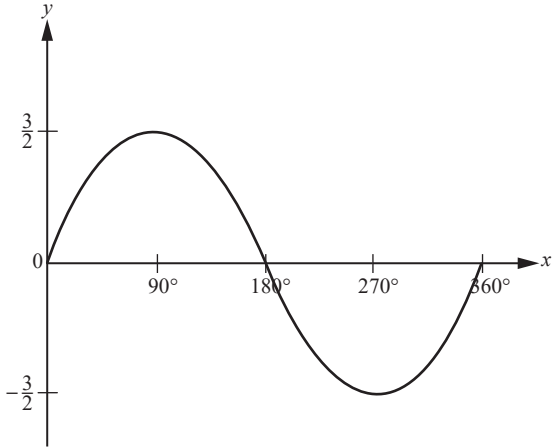
From the graph, the marks is 61.5.

KERTAS 2

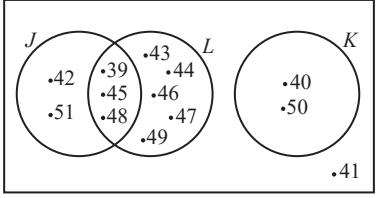
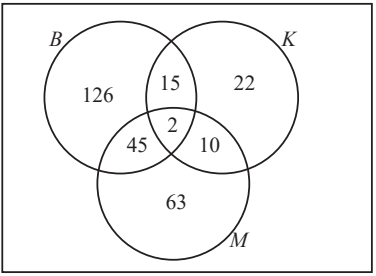
Bahagian A

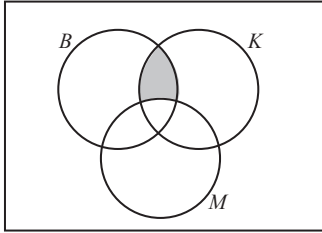
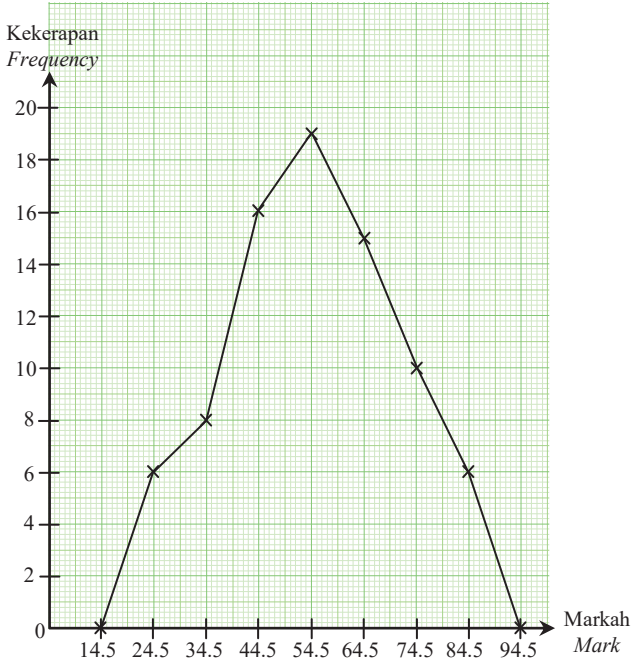
No.	Skema Pemarkahan <i>Marking Scheme</i>	Markah <i>Marks</i>	Markah Total <i>Total Marks</i>
1	<p>(a)</p> <p>R ditanda di (3, 6) atau (3, -4). <i>R is marked at (3, 6) or (3, -4).</i></p> <p>(b) Jarak antara titik R dan titik Q <i>Distance between points R and Q</i> $= \sqrt{[3 - (-2)]^2 + (6 - 1)^2}$ atau / or $\sqrt{[3 - (-2)]^2 + (-4 - 1)^2}$ $= 7.07$ unit</p>	1	3
2	<p>(a) $Q_1 = 5$</p> <p>(b) Julat antara kuartil / <i>Interquartile range</i> $= Q_3 - Q_1$ $= 16 - 5$ $= 11$</p>	1	

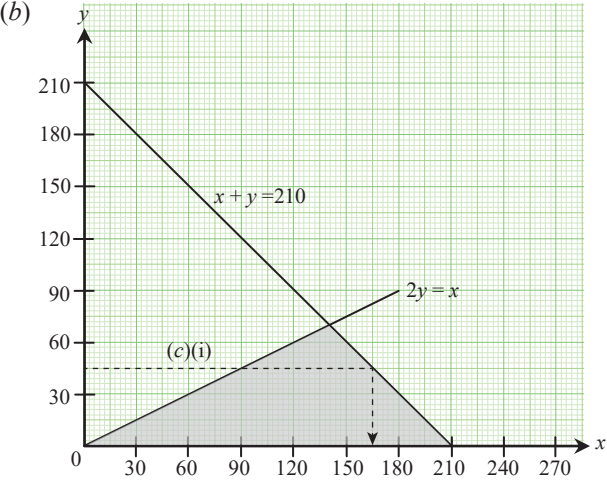
No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
3	(a) Akas: Jika $2x - 3 = 5$, maka $x = 4$. <i>Converse: If $2x - 3 = 5$, then $x = 4$.</i>	1	4
	Kontrapositif: Jika $2x - 3 \neq 5$, maka $x \neq 4$. <i>Contrapositive: If $2x - 3 \neq 5$, then $x \neq 4$.</i>	1	
	(b) $8(n)^2 - 4$, $n = 1, 2, 3, 4, \dots$	2	
4	(a) Y: Menilai kedudukan kewangan. <i>Evaluating financial status.</i>	1	4
	(b) Aliran tunai / <i>Cash flow</i> $= \text{RM}8\,500 + \text{RM}1\,200 - \left(\frac{12}{100} \times 8\,500\right) - \text{RM}4\,350 - \text{RM}3\,610$ $= \text{RM}720$	2 1	
5	$\left[\frac{1}{2}(50 + QP)(24)\right] - (10 \times 8) = 628$ $600 + 12QP = 708$ $QP = 9 \text{ m}$	2	3
		1	
6	(a) $\frac{80}{100} \times 300\,000 = 240\,000$ Bayaran pampasan / <i>Amount of compensation</i> $= \frac{\text{Jumlah insurans yang telah dibeli}}{\text{Jumlah insurans yang harus dibeli}} \times \text{Jumlah kerugian} - \text{Deduktibel}$ $= \frac{\text{Amount of insurance purchased}}{\text{Amount of insurance to be purchased}} \times \text{Total loss} - \text{Deductible}$ $= \frac{200\,000}{240\,000} \times 30\,000 - 2\,500$ $= \text{RM}22\,500$	1 1 1	4
	(b) Penalti ko-insurans / <i>Co-insurance penalty</i> $= 30\,000 - \left(\frac{200\,000}{240\,000} \times 30\,000\right)$ $= \text{RM}5\,000$	1	
7	Luas kolam renang – Luas bahagian kanak-kanak = Luas bahagian dewasa <i>Area of the swimming pool – Area of children's section = Area of adults' section</i> $\left[(7x - 2)\left(2 \times \frac{5}{2}x\right)\right] - 12\frac{4}{7} = 107\frac{3}{7}$ $35x^2 - 10x - 120 = 0$ $(7x + 12)(x - 2) = 0$ $x = -\frac{12}{7}$ atau / <i>or</i> $x = 2$ $\therefore x = 2$	1	4
		1	
		1	
		1	
8	Katakan pelitup muka = m <i>Let face mask = m</i> Katakan pensanitasi tangan = k <i>Let hand sanitizer = k</i> $3m + 4k = 148.40$ $2(2m + 6k) = 301.20$ $4m + 12k = 301.20$	1	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	$\begin{bmatrix} 3 & 4 \\ 4 & 12 \end{bmatrix} \begin{bmatrix} m \\ k \end{bmatrix} = \begin{bmatrix} 148.40 \\ 301.20 \end{bmatrix}$ $\begin{bmatrix} m \\ k \end{bmatrix} = \frac{1}{(3)(12) - (4)(4)} \begin{bmatrix} 12 & -4 \\ -4 & 3 \end{bmatrix} \begin{bmatrix} 148.40 \\ 301.20 \end{bmatrix}$ $\begin{bmatrix} m \\ k \end{bmatrix} = \frac{1}{20} \begin{bmatrix} (12 \times 148.40) + (-4 \times 301.20) \\ (-4 \times 148.40) + (3 \times 301.20) \end{bmatrix}$ $\begin{bmatrix} m \\ k \end{bmatrix} = \frac{1}{20} \begin{bmatrix} 576 \\ 310 \end{bmatrix}$ $\begin{bmatrix} m \\ k \end{bmatrix} = \begin{bmatrix} 28.8 \\ 15.5 \end{bmatrix}$ <p>$m = \text{RM}28.80$ $k = \text{RM}15.50$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>5</p>
9	<p>(a) (i) $M' = (3, 0)$</p> <p>(ii) Putaran lawan arah jam pada pusat $(-4, 2)$. <i>Anticlockwise rotation at centre $(-4, 2)$.</i></p> <p>atau / or</p> <p>Putaran ikut arah jam pada pusat $(1, -7)$. <i>Clockwise rotation at centre $(1, -7)$.</i></p> <p>(b) Translasi / Translation $\begin{pmatrix} 11 \\ 11 \end{pmatrix}$</p> <p>atau / or</p> <p>Pantulan pada garis $y = -x$. <i>Reflection on line $y = -x$.</i></p>	<p>1</p> <p>2</p> <p>2</p>	<p>5</p>
10	<p>(a)</p>  <p>(b) (i) $PR = \sqrt{30^2 + 15^2}$ $= 33.54 \text{ cm}$</p> <p>(ii) $\cos / \cos y^\circ = \frac{30}{33.54}$ (Sukuan / <i>Quadrant II</i>) $\cos / \cos y^\circ = -0.89$</p>	<p>2</p> <p>1</p> <p>1</p> <p>1</p>	<p>5</p>

Bahagian B

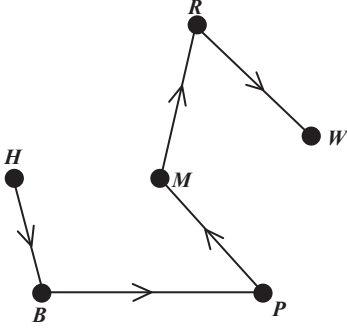
No.	Skema Pemarkahan <i>Marking Scheme</i>	Markah <i>Marks</i>	Markah Total <i>Total Marks</i>
11	<p>(a) (i) $2y = -3x + 8$ $y = -\frac{3}{2}x + 4$ $m = -\frac{3}{2}$</p> <p>(ii) $2(0) = -3x + 8$ $x = \frac{8}{3}$ \therefore Pintasan-x / x-intercept = $\frac{8}{3}$</p>	<p>1</p> <p>1</p> <p>1</p>	8
	<p>(b) (i) $m = \frac{3-2}{0-(-2)}$ $= \frac{1}{2}$ $y = mx + c$ $y = \frac{1}{2}x + 3$ $y = \frac{1}{2}(8) + 3$ $y = 7$ Koordinat zoo / <i>The coordinates of zoo</i> = (8, 7)</p> <p>(ii) $7 = -\frac{1}{4}(8) + c$ $c = 9$ $y = -\frac{1}{4}x + 9$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	
12	<p>(a) (i) $J = \{39, 42, 45, 48, 51\}$ $L = \{39, 43, 44, 45, 46, 47, 48, 49\}$</p> <p>(ii) ζ</p> 	<p>1</p> <p>1</p> <p>3</p>	
	<p>(b) (i) ζ</p>  <p>(ii) Bilangan responden yang tidak memilih sebarang syarikat penerbangan <i>Number of respondents who do not choose any airlines</i> $= 300 - 126 - 15 - 22 - 2 - 45 - 10 - 63$ $= 17$</p>	<p>2</p> <p>1</p> <p>1</p>	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks										
	(iii) ζ  $(B \cap K) \cap M' = 15$	1	10										
13	(a) (i) <table border="1" data-bbox="279 482 504 858"> <thead> <tr> <th>Kekerapan Frequency</th> </tr> </thead> <tbody> <tr><td>0</td></tr> <tr><td>6</td></tr> <tr><td>8</td></tr> <tr><td>16</td></tr> <tr><td>19</td></tr> <tr><td>15</td></tr> <tr><td>10</td></tr> <tr><td>6</td></tr> <tr><td>0</td></tr> </tbody> </table> (ii) 	Kekerapan Frequency	0	6	8	16	19	15	10	6	0	2	
Kekerapan Frequency													
0													
6													
8													
16													
19													
15													
10													
6													
0													
	(b) (i) $x = \sqrt{\frac{6(24.5)^2 + 8(34.5)^2 + 16(44.5)^2 + 19(54.5)^2 + 15(64.5)^2 + 10(74.5)^2 + 6(84.5)^2}{80}} - 54.75^2$ $= 16.65$ (ii) Prestasi murid pada tahun 2021 lebih konsisten. <i>The students performance in 2021 is more consistent.</i>	2 1 1	9										

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
14	<p>(a) $x + y \leq 210$ $x \geq 2y$</p> <p>(b) </p> <p>(c) (i) Bilangan maksimum murid sekolah menengah = 165 <i>The maximum number of secondary school students</i></p> <p>(ii) Jumlah yuran minimum yang diterima penganjur <i>Total minimum fees received by the organiser</i> = $(90 \times \text{RM}150) + (45 \times \text{RM}120)$ = RM18 900</p>	<p>1 1</p> <p>4</p> <p>1 1</p>	<p>9</p>
15	<p>(a) Pendapatan bercukai Encik Farqan / <i>Encik Farqan's chargeable income</i> = RM77 600 – RM12 600 – RM9 000 – RM3 360 – RM2 500 = RM50 140</p> <p>(b) Cukai pendapatan / <i>Income tax</i> = $\text{RM}1\,800 + \left[(\text{RM}50\,140 - \text{RM}50\,000) \times \frac{13}{100} \right] - \text{RM}840$ = $\text{RM}1\,800 + \text{RM}18.20 - \text{RM}840$ = RM978.20</p> <p>(c) (i) Potongan cukai bulanan (PCB) pada tahun tersebut <i>Monthly tax deduction (PCB) in that year</i> = $\text{RM}120 \times 12$ = RM1 440</p> <p>Tidak perlu, RM1 440 melebihi RM978.20. <i>No need, RM1 440 exceeds RM978.20.</i></p> <p>(ii) LHDN perlu memulangkan lebih kepada Encik Farqan. <i>IRB should refund the excess deduction to Encik Farqan.</i></p>	<p>1 1</p> <p>2 1</p> <p>1 1 1</p>	<p>8</p>

Bahagian C

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
16	(a) (i) $15 : 18 = 5 : 6$	1	
	(ii) $18x + 15(14) = 390$ $18x = 390 - 210$ $x = \frac{180}{18}$ $x = 10$	1	
	(b) (i)	3	
	(ii) Laju van / Speed of the van = $\frac{30 - 0}{50 - 30}$ $= \frac{3}{2} \text{ km min}^{-1}$	1	
	(c) Min / Mean = $\frac{23(2) + 24(2) + 26(3) + 28(4) + 30(2) + 32(2) + 35(2) + 36(4) + 38(3)}{2 + 2 + 3 + 4 + 2 + 2 + 2 + 4 + 3}$ $= 30 \frac{2}{3}$ \therefore Setuju dengan kenyataan pemain tersebut. <i>Agree with the player's statement.</i>	2 1 1	
(d) Kebarangkalian pasukan lelaki = $\left(\frac{2}{5} \times \frac{7}{15}\right) + \left(\frac{3}{5} \times \frac{8}{15}\right) + \left(\frac{2}{5} \times \frac{8}{15}\right)$ <i>Probability of boys team</i> $= \frac{54}{75}$ Kebarangkalian pasukan perempuan = $\left(\frac{3}{7} \times \frac{5}{8}\right) + \left(\frac{4}{7} \times \frac{3}{8}\right) + \left(\frac{3}{7} \times \frac{3}{8}\right)$ <i>Probability of girls team</i> $= \frac{36}{56}$ Kedua-dua pasukan lelaki dan perempuan berpeluang ke peringkat seterusnya kerana kedua-dua kebarangkalian melebihi $\frac{3}{5}$. <i>Both boys and girls team get the chance to the next stage because both the probability exceeds $\frac{3}{5}$.</i>	1 1 1 1		
17	(a) (i) $25 \text{ km j}^{-1} / \text{ km h}^{-1}$ (ii) Jarak yang dilalui = $\frac{1}{2} \times 25 \times 0.5$ <i>Distance travelled</i> $= 6.25 \text{ km}$	1 1 1	15

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
(b) (i)		2	
	(ii) Masa paling panjang = 17 + 15 + 72 + 10 + 45 minit / minutes The longest time	1	
	= 2 jam 39 minit / 2 hours 39 minutes	1	
(c)	Jarak kayuhan santai / Distance of the recreational ride $= 12.5 \text{ km} \times 1\,000$ $= 12\,500 \text{ m}$ Jejari tayar basikal R / Radius of tyre of bicycle R $= \left(\frac{1}{2} \times \frac{600 \text{ mm}}{1\,000} \right) + (3 \text{ cm} \div 100)$ $= 0.3 \text{ m} + 0.03 \text{ m}$ $= 0.33 \text{ m}$ Jejari basikal S / Radius of bicycle S $= \left[\left(\frac{3}{4} \times 0.6 \text{ m} \right) \div 2 \right] + (3 \text{ cm} \div 100)$ $= 0.225 \text{ m} + 0.03 \text{ m}$ $= 0.255 \text{ m}$ Beza bilangan putaran lengkap antara kedua-dua roda basikal itu Difference of the number of complete rotations between both bicycle wheels $= \left(\frac{12\,500 \text{ m}}{2 \times \frac{22}{7} \times 0.255} \right) - \left(\frac{12\,500 \text{ m}}{2 \times \frac{22}{7} \times 0.33} \right)$ $= 1\,772.403176$ $= 1\,772$	1	
	(d) Harga basikal di kedai TT Cycles / The price of a bicycle at TT Cycles shop		
	$= \left(\frac{95}{100} \times 650 \right) + \left(\frac{85}{100} \times 650 \right)$ $= \text{RM}1\,170$	1	
	Harga basikal di kedai The Wheel / The price of a bicycle at The Wheel shop $= \left[\frac{85}{100} \times 2 \left(\frac{5\,500}{7.9} \right) \right] + \frac{790}{7.9}$ $= \frac{93\,500}{79} + 100$ $= \text{RM}1\,283.54$	1	
	Kedai TT Cycles akan menjadi pilihan Encik Faez kerana lebih murah. TT Cycles shop will be Encik Faez's choice because it is cheaper.	2	
			15

KERTAS 1

1 D

A: $-0.32, -0.16, -0.8, -0.4, \dots$
 $-0.32 \div 2 = -0.16$
 $-0.16 \div 2 = -0.08$ (salah / *wrong*)

B: $21, 63, 126, 387, \dots$
 $21 \times 3 = 63$
 $63 \times 3 = 189$ (salah / *wrong*)

C: $92, 88, 84, 79, \dots$
 $92 - 4 = 88$
 $88 - 4 = 84$
 $84 - 4 = 80$ (salah / *wrong*)

D: $100, 116, 132, 148, \dots$
 $100 + 16 = 116$
 $116 + 16 = 132$
 $132 + 16 = 148$ (betul / *correct*)

2 B

$$\text{RM}120 - 3 \times \text{RM}15 = \text{RM}120 - \text{RM}45$$

$$= \text{RM}75$$

$$100\% - 25\% = 75\%$$

Harga selepas diskaun / *Price after discount*

$$= \frac{75}{100} \times \text{RM}40$$

$$= \text{RM}30$$

$$2 \times \text{RM}30 = \text{RM}60$$

$$3 \times \text{RM}30 = \text{RM}90$$

\therefore Jumlah maksimum kek keju yang boleh dibeli ialah 2 biji.

The maximum number of cheesecake that he can buy is 2.

3 D

$$\text{Jumlah luas 16 keping jubin} = 16 \times 80 \text{ cm} \times 65 \text{ cm}$$

Total area of 16 tiles

$$= 83\,200 \text{ cm}^2$$

$$= 8.32 \times 10^4$$

4 C

$$A = P + Prt$$

$$= 100\,000 + \left(100\,000 \times \frac{4.18}{100} \times 8\right)$$

$$= 133\,440$$

Ansuran bulanan / *Monthly instalment*

$$= \frac{133\,440}{8 \times 12}$$

$$= \text{RM}1\,390$$

5 D

$$1 \times 5^5 + 4 \times 5^3 + 2 \times 5^1$$

$$= (1 \times 5^5) + (4 \times 5^3) + (2 \times 5^1) + (0 \times 5^2) + (0 \times 5^0)$$

$$= 104020_5$$

6 B

$$220002_3$$

$$= (2 \times 3^5) + (2 \times 3^4) + (0 \times 3^3) + (0 \times 3^2) + (0 \times 3^1) + (2 \times 3^0)$$

$$= 650$$

$$\frac{6}{100} \times 650 = 39$$

$$\begin{array}{r}
 4 \overline{) 39} \\
 \underline{4 9} \\
 4 \underline{2} \\
 \underline{0}
 \end{array}
 \begin{array}{l}
 \\
 \\
 \\
 \uparrow
 \end{array}$$

$$39_{10} = 213_4$$

7 D

Cukai jalan: kereta

Road tax: car

Cukai pendapatan: pendapatan tahunan

Income tax: annual income

Cukai pintu: banglo

Property assessment tax: a bungalow

8 C

Cukai pintu / Property assessment tax

$$= \frac{1}{2} \times \text{RM}5\,880 \times \frac{5}{100}$$

$$= \text{RM}147$$

9 A

Premium asas / Basic premium

$$= \text{RM}243.90 + \text{RM}20.30 \times \left(\frac{120\,000 - 1\,000}{1\,000} \right)$$

$$= \text{RM}2\,659.60$$

Premium kasar / Gross premium

$$= \text{RM}2\,659.60 \times (100\% - 45\%)$$

$$= \text{RM}2\,659.60 \times \left(\frac{55}{100} \right)$$

$$= \text{RM}1\,462.78$$

10 C

$$3 - 2x \leq 1$$

$$-2x \leq 1 - 3$$

$$-2x \leq -2$$

$$x \geq 1$$

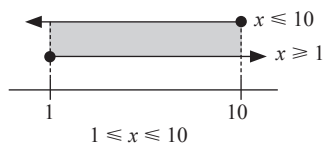
$$4x - 3 \leq 37$$

$$4x \leq 37 + 3$$

$$4x \leq 40$$

$$x \leq 10$$

$$\therefore 1 \leq x \leq 10$$



11 B

$$F = \frac{9}{5}C + 32$$
$$19.04 = \frac{9}{5}C + 32$$
$$-12.96 = \frac{9}{5}C$$
$$C = -7.2$$

12 C

$$45 \text{ minit / minutes} \times \frac{1 \text{ jam / hour}}{60 \text{ minit / minutes}} = 0.75 \text{ jam / hour}$$

$$\text{Jarak / Distance} = 96 \frac{\text{km / j}}{\text{km / h}} \times 2.75 \text{ jam / hours}$$
$$= 264 \text{ km}$$

$$15 \text{ minit / minutes} \times \frac{1 \text{ jam / hour}}{60 \text{ minit / minutes}} = 0.25 \text{ jam / hour}$$

$$\text{Laju purata / Average speed} = \frac{264 \text{ km}}{2.25 \text{ j / h}}$$
$$= 117.33 \frac{\text{km / j}}{\text{km / h}}$$

13 A

$$f(x) = -2(x + 1)(x - 3)$$

$$f(0) = -2(0 + 1)(0 - 3)$$

$$f(0) = -2(1)(-3)$$

$$f(0) = 6$$

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

$$a = -2 < 0, \quad \cap$$

14 B

Katakan / Let x = lelaki / boys

Katakan / Let y = perempuan / girls

$$x + y \leq 36$$

$$x \geq 3y$$

$$x \geq 3(6)$$

$$x \geq 18 \text{ (minimum)}$$

$$36 - 6 = 30 \left(\begin{array}{l} \text{maksimum} \\ \text{maximum} \end{array} \right)$$

15 D

A: $2y \leq x$

B: $x + y \leq 180$

C: Bilangan maksimum ban sardin ialah 120 biji.

The maximum number of sardine buns is 120.

D: Bilangan maksimum ban kacang ialah 60 biji.

The maximum number of bean buns is 60.

16 C

RS: Bergerak pada arah sama dan laju berkurang.

Moves in the same direction and speed decreases.

Masa dari Q ke R / Time from Q to R

$$= 18 \text{ minit / minutes} - 8 \text{ minit / minutes}$$

$$= 10 \text{ minit / minutes}$$

QR: Bergerak dengan laju seragam selama 10 minit.

Moves at a uniform speed for 10 minutes.

17 B

$$\text{Laju / Speed} = \frac{\text{Jarak / Distance}}{\text{Masa / Time}}$$

$$4 = \frac{y - 10}{20 - 0}$$

$$80 = y - 10$$

$$y = 90$$

18 A

$$M = \frac{12}{L}$$

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

$$6 = 6$$

$$M = \frac{12}{L}$$

$$4 = \frac{12}{3}$$

$$4 = 4$$

19 A

$$P \propto \frac{Q^2}{R}$$

$$P = \frac{kQ^2}{R}$$

$$18 = \frac{k(3)^2}{2}$$

$$36 = k(9)$$

$$k = 4$$

$$P = \frac{4Q^2}{R}$$

$$10 = \frac{4(4)^2}{R}$$

$$R = \frac{64}{10}$$

$$R = \frac{32}{5}$$

20 B

$$P = \begin{bmatrix} 1 & 2 & 3 \\ 2 & -3 & 4 \\ -1 & 0 & 6 \\ 3 & 7 & 2 \\ 6 & 3 & 11 \end{bmatrix} \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \end{matrix}$$

$$4 \times 3, P_{23} = 6$$

21 A

$$\begin{bmatrix} x & -1 \\ 4 & 1 \end{bmatrix} - 3 \begin{bmatrix} -\frac{1}{3} & -\frac{1}{6} \\ -2 & -\frac{2}{3} \end{bmatrix} + \begin{bmatrix} -8 & 1 \\ -1 & -5 \end{bmatrix} = \begin{bmatrix} -5 & \frac{1}{2} \\ 3 & y \end{bmatrix}$$

$$\begin{bmatrix} x & -1 \\ 4 & 1 \end{bmatrix} - \begin{bmatrix} -1 & -\frac{1}{2} \\ -6 & -2 \end{bmatrix} + \begin{bmatrix} -8 & 1 \\ -1 & -5 \end{bmatrix} = \begin{bmatrix} -5 & \frac{1}{2} \\ 3 & y \end{bmatrix}$$

$$x - (-1) + (-8) = -5$$

$$x + 1 - 8 = -5$$

$$x - 7 = -5$$

$$x = -5 + 7$$

$$x = 2$$

$$1 - (-2) + (-5) = y$$

$$1 + 2 - 5 = y$$

$$y = -2$$

22 A

$$QR : PS = \frac{1}{5} : \frac{1}{4}$$

$$\frac{QR}{PS} = \frac{\left(\frac{1}{5}\right)}{\left(\frac{1}{4}\right)}$$

$$\frac{QR}{15} = \frac{4}{5}$$

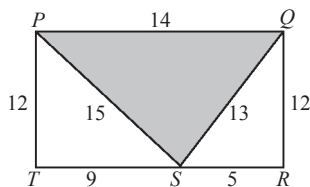
$$QR = 12$$

$$RS : QR = \frac{1}{12} : \frac{1}{5}$$

$$\frac{RS}{QR} = \frac{\left(\frac{1}{12}\right)}{\left(\frac{1}{5}\right)}$$

$$\frac{RS}{12} = \frac{5}{12}$$

$$RS = 5$$



$$QS = \sqrt{5^2 + 12^2}$$

$$QS = 13$$

$$TS = \sqrt{15^2 - 12^2}$$

$$TS = 9$$

$$PQ = 9 + 5$$

$$PQ = 14$$

$$PQ + PS + QS$$

$$= 14 + 15 + 13$$

$$= 42$$

23 C

Sudut pedalaman / Interior angle

$$= \frac{(n-2) \times 180^\circ}{n}$$

$$= \frac{(6-2) \times 180^\circ}{6}$$

$$= 120^\circ$$

$$\angle STV = 120^\circ - 40^\circ$$

$$= 80^\circ$$

$$\angle TVR = 360^\circ - 80^\circ - 120^\circ - 50^\circ$$

$$= 110^\circ$$

$$\angle TVU = 180^\circ - 40^\circ - 40^\circ$$

$$= 100^\circ$$

$$x = 360^\circ - 110^\circ - 100^\circ$$

$$= 150^\circ$$

24 B

$$4x^\circ + \frac{x^\circ}{2} = 180^\circ$$

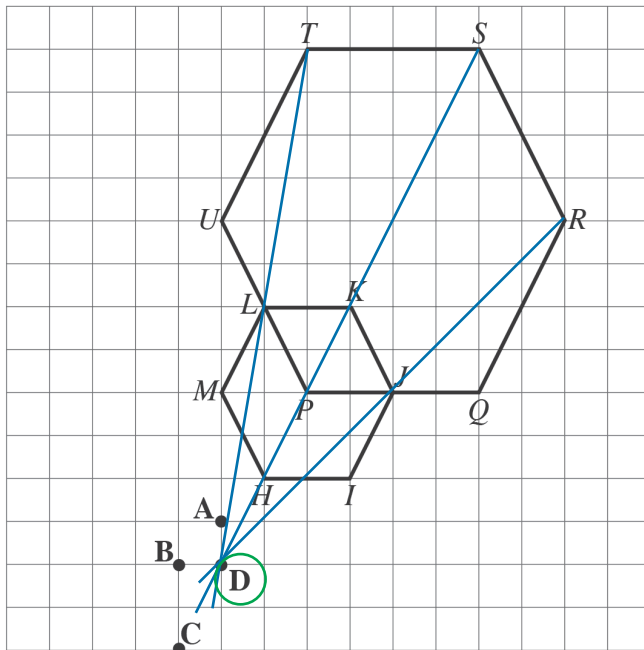
$$8x^\circ + x^\circ = 360^\circ$$

$$9x^\circ = 360^\circ$$

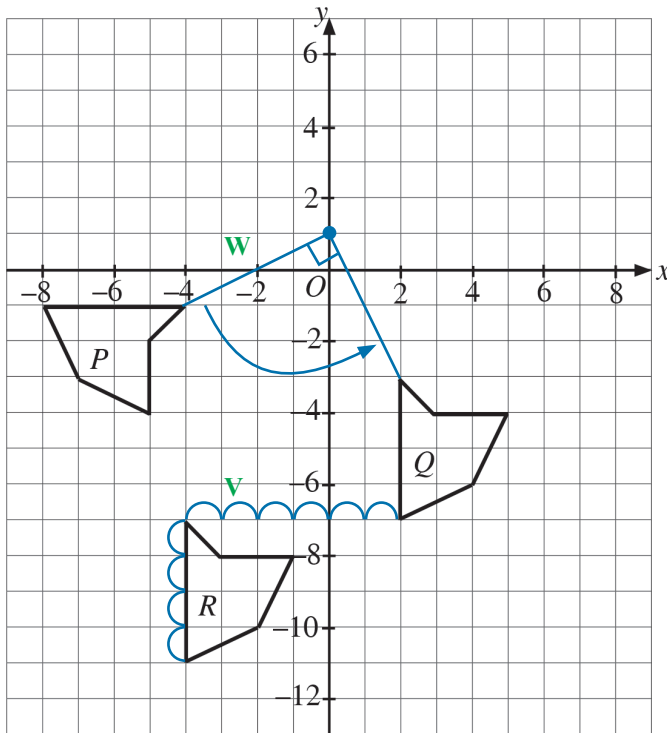
$$x^\circ = \frac{360^\circ}{9}$$

$$x^\circ = 40^\circ$$

25 D



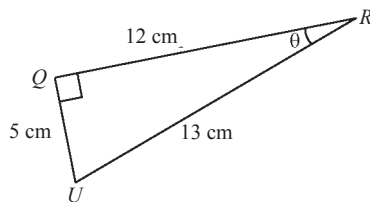
26 C



27 A

$$\begin{aligned} QR &= 4RS \\ &= 4(3) \\ &= 12 \text{ cm} \end{aligned}$$

$$\begin{aligned} QU &= \sqrt{13^2 - 12^2} \\ &= 5 \text{ cm} \end{aligned}$$



$$\begin{aligned} \tan x^\circ &= -\theta \\ &= -\frac{5}{12} \end{aligned}$$

28 A

A: $y = \cos / \cos \frac{3}{2}x, c = 1$

B: $y = -\cos / \cos \frac{3}{2}x, c = -1$

C: $y = \sin \frac{3}{2}x, c = 1$

D: $y = -\sin \frac{3}{2}x, c = -1$

29 C

A: Palsu atau benar = benar

False or true = true

B: Benar atau palsu = benar

True or false = true

C: Benar dan palsu = palsu

True and false = false

D: Benar dan benar = benar

True and true = true

30 C

$$p: k = 7$$

$$q: 2k - 11 = 3$$

Kontrapositif: Jika $\sim q$, maka $\sim p$.

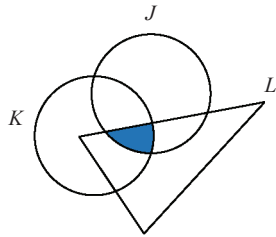
Contrapositive: If $\sim q$, then $\sim p$.

\therefore Jika $2k - 11 \neq 3$, maka $k \neq 7$

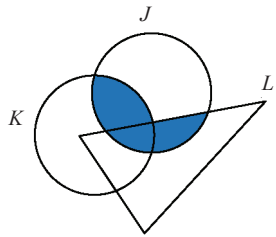
If $2k - 11 \neq 3$, then $k \neq 7$

31 D

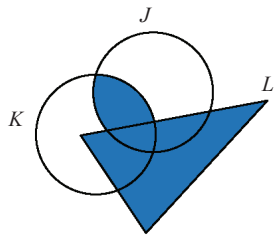
A: $K \cap L \cap J$



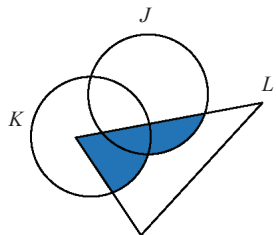
B: $(K \cup L) \cap J$



C: $(K \cap J) \cup L$



D: $(K \cup J) \cap L$



32 C

$$n(P) = n(R)$$

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

$$y = 6$$

$$y - x = 1$$

$$6 - x = 1$$

$$-x = -5$$

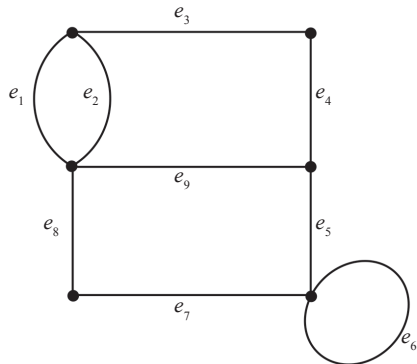
$$x = 5$$

$$n(P \cup Q) = y + 3 + x + 2$$

$$n(P \cup Q) = 6 + 3 + 5 + 2$$

$$n(P \cup Q) = 16$$

33 A



$$E = \{e_1, e_2, e_3, e_4, e_5, e_6, e_7, e_8, e_9\}$$

$$n(E) = 9$$

Jumlah darjah / Sum of degree

$$\sum d(v) = 2(E)$$

$$= 2(9)$$

$$= 18$$

34 B

Jenama <i>Brand</i>	Jumlah jualan enam bulan pertama <i>Total sales in the first six months</i>	Jumlah jualan enam bulan terakhir <i>Total sales in the last six months</i>	Jumlah <i>Total</i>
<i>Q</i>	150	600	750
<i>R</i>	250	750	1 000
<i>S</i>	250	500	750
<i>T</i>	350	0	350

35 C

$$10 + x = 11 + 5 + 4$$

$$x = 20 - 10$$

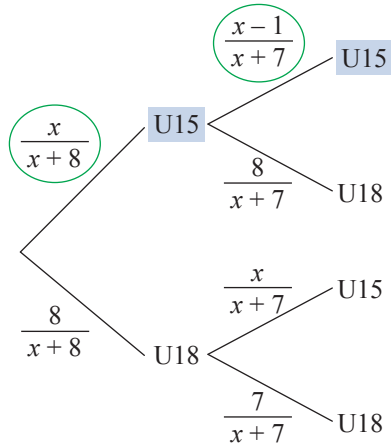
$$x = 10$$

36 B

$$Q_1 = 22, \quad Q_3 = 71$$

$$\begin{aligned} \text{Julat antara kuartil / Interquartile range} \\ &= 71 - 22 \\ &= 49 \end{aligned}$$

37 D



$$\frac{x}{x+8} \times \frac{x-1}{x+7} = \frac{5}{17}$$

$$\frac{x^2 - x}{x^2 + 15x + 56} = \frac{5}{17}$$

$$17x^2 - 17x = 5x^2 + 75x + 280$$

$$12x^2 - 92x - 280 = 0$$

$$3x^2 - 23x - 70 = 0$$

$$(x - 10)(3x + 7) = 0$$

$$x = 10, x = -\frac{7}{3} \text{ (abaikan / ignore)}$$

Jumlah ahli pasukan badminton sekolah / Total number of badminton team members

$$= 10 + 8 + 7 + 15$$

$$= 40$$

38 C

$$\begin{aligned} P(L, L) + P(P, P) &= \left(\frac{10}{24} \times \frac{9}{23}\right) + \left(\frac{14}{24} \times \frac{13}{23}\right) \\ &= \frac{34}{69} \end{aligned}$$

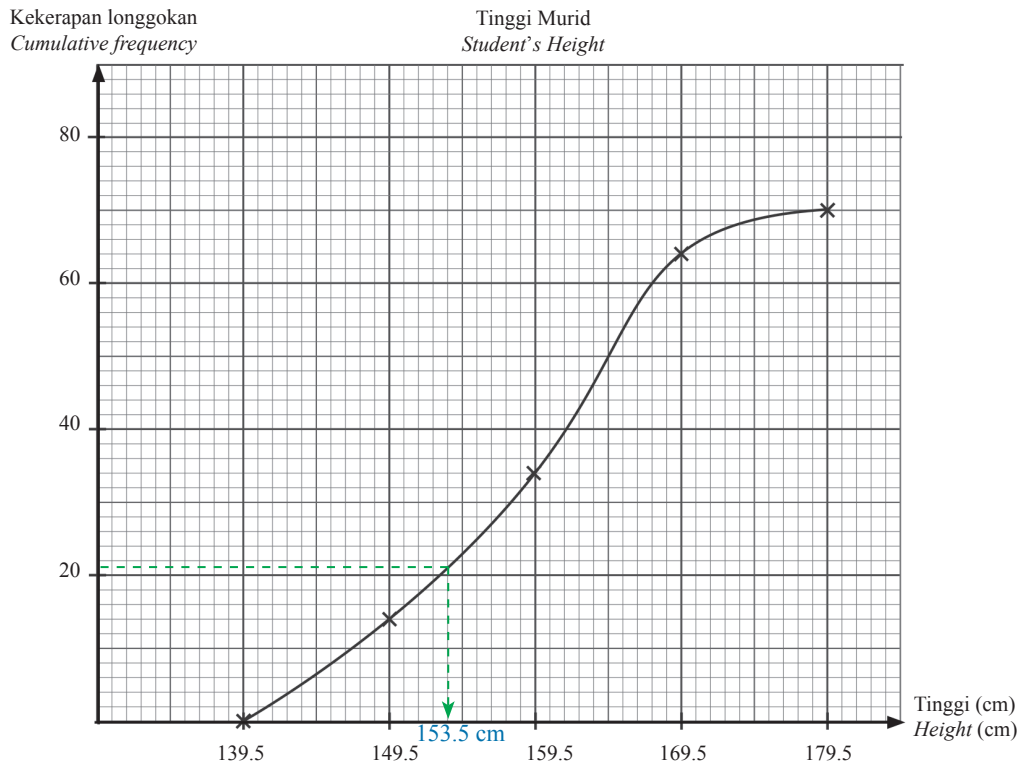
39 D

$$\sigma^2 = \frac{\sum fx^2}{\sum f} - \bar{x}^2$$

$$= \frac{107.98}{100} - \left(\frac{100.4}{100}\right)^2$$

40 A

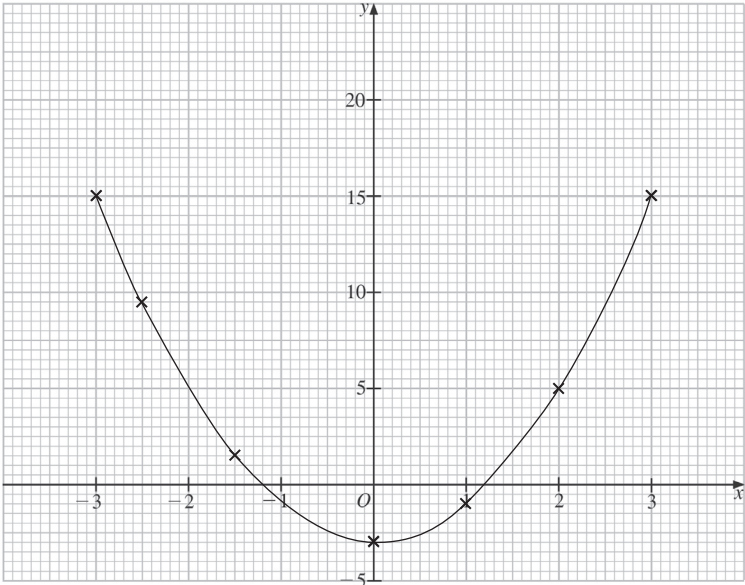
$$\begin{aligned} \text{Persentil ke-30} &= \frac{30}{100} \times 70 \\ \text{30}^{\text{th}} \text{ percentile} &= 21 \end{aligned}$$



Dari graf, tinggi ialah 153.5 cm.
From the graph, the height is 153.5 cm.

KERTAS 2

Bahagian A

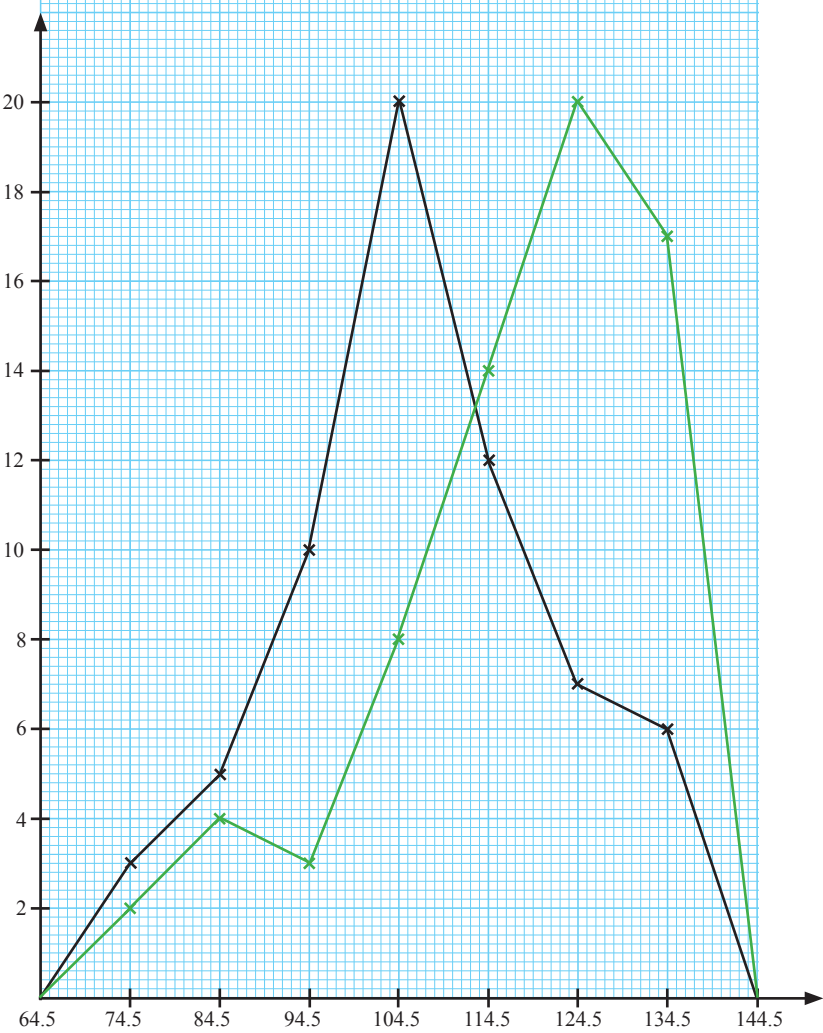
No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks										
1	(a) 12	1	3										
	(b) 46	1											
	(c) Nilai maksimum ialah 54 minit. <i>The maximum value is 54 minutes.</i>	1											
2	(a) <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>x</td> <td>-2.5</td> <td>-1.5</td> <td>1</td> <td>2</td> </tr> <tr> <td>y</td> <td>9.5</td> <td>1.5</td> <td>-1</td> <td>5</td> </tr> </table>	x	-2.5	-1.5	1	2	y	9.5	1.5	-1	5	1	3
	x	-2.5	-1.5	1	2								
y	9.5	1.5	-1	5									
(b) 	1 1												
3	Kecerunan = $\frac{4-2}{3-0}$ Gradient = $\frac{2}{3}$	1	3										
	$y = mx + c$ $-1 = \left(\frac{2}{3}\right)(1) + c$ $c = -\frac{5}{3}$	1											
	$y = \frac{2}{3}x - \frac{5}{3}$	1											
4	(a) Cuka epal mempunyai nilai pH < 7. <i>Apple vinegar has a pH value < 7.</i>	1											

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	<p>(b) (i) $915 - 600 = 315$ $600 - 315 = 285$ $y = 315x + 285, x = 1, 2, 3, 4, 5, \dots$</p> <p>(ii) $y = 315x + 285$ $3\,500 = 315x + 285$ $x = 10.21$ $x = 11$ bulan / months</p>	2 1 1	5
5	<p>(a) Mewarna Colouring</p> <p>Menyanyi Singing</p> <p>Memasak Cooking</p>	2	5
	<p>(b) (i) $12 + 6 + 11 = 29$ (ii) $12 + 4 + 6 + 10 + 11 = 43$</p>	1 1 1	
6	<p>(a) Laju seragam Constant speed</p>	1	4
	<p>(b) $\frac{1}{2}(17 + 13)(10) + \frac{1}{2}(25)(17) = 362.5$</p>	2 1	
7	<p>(a) Tidak, kerana nilai deduktibel adalah lebih tinggi daripada kos rawatan. No, because the deductible value is higher than the cost of treatment.</p>	1	4
	<p>(b) $\frac{15}{100}(29\,900 - 1\,500) + 1\,500 = \text{RM}5\,760$</p>	2 1	
8	<p>(a) $y \geq 10$</p>	1	4
	<p>(b)</p> <p>– Garis $x = 30$ dilukis dengan betul. The $x = 30$ line is drawn correctly. – Garis $y = 10$ dilukis dengan betul. The $y = 10$ line is drawn correctly. – Rantau dilorek dengan betul. The region is correctly shaded.</p>	1 1 1	

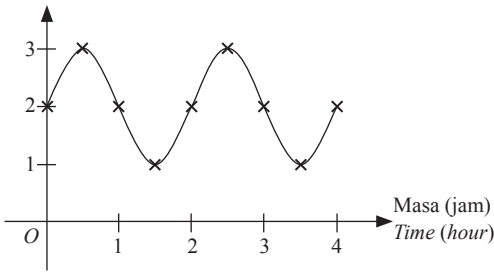
No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
9	(a) Ya / Yes $AB = BC$	1	4
	(b) Pembesaran pada pusat (3, 2) dengan faktor skala $-\frac{1}{2}$. <i>Enlargement at center (3, 2) with a scale factor of $-\frac{1}{2}$.</i>	3	
10	(a) Salah, kerana Puan Ilham tidak perlu menolak rebat cukai. <i>Wrong, because Puan Ilham does not need to subtract tax rebate.</i>	1	5
	(b) Pendapatan bercukai / <i>Chargeable income</i> = RM69 200 – RM18 500 – RM470 = RM50 230 Cukai pendapatan / <i>Income tax</i> = RM1 800 – (RM50 230 – RM50 000) \times $\left(\frac{13}{100}\right)$ – 1 260 = RM569.90	1 2 1	

Bahagian B

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
11	(a) Jangka pendek dan jangka panjang <i>Short term and long term</i>	1	8
	(b) (i) RM4 322 + RM500 – (RM900 + RM600 + RM200) – (RM180 + RM550 + RM350 + RM200) = RM1 842 Aliran tunai positif. <i>Positive cash flow.</i>	1	
		1	
		1	
	(ii) (a) $\frac{10\,850 + 13\,000}{12} - 1\,842$ = RM145.50	1	
		1	
(b) – Mengurangkan perbelanjaan makanan dan minuman. <i>Reduce food and drinks expenses.</i> – Mengurangkan belanja petrol dengan menggunakan pengangkutan awam. <i>Reduce petrol expenses by using public transport.</i>	1		
	1		
12	(a) (i) Saiz selang kelas / <i>Class interval</i> : 10	1	5
	Julat / <i>Range</i> : $\left[\left(\frac{130 + 139}{2}\right) - \left(\frac{70 + 79}{2}\right)\right] = 60$	1	
	(ii) $x = 68 - 2 - 4 - 3 - 8 - 14 - 20$ = 17	1	
		1	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
(b)	<p data-bbox="189 245 365 295">Bilangan pelanggan Number of customer</p>  <p data-bbox="768 1323 996 1373">Jumlah perbelanjaan (RM) Total expenditure (RM)</p> <p data-bbox="235 1387 539 1446">– 7 titik diplot dengan betul. 7 points are plotted correctly.</p> <p data-bbox="235 1452 886 1511">– 9 titik yang betul dilalui oleh poligon kekerapan. The correct 9 points are passed through by the frequency polygon.</p>	2	
(c) (i)	<p data-bbox="235 1530 462 1583">– Bentuk loceng Bell-shaped</p> <p data-bbox="235 1589 475 1642">– Pencong ke kiri Left-skewed</p>	1	
13	<p data-bbox="235 1654 908 1707">(ii) Hari kedua. Pelanggan membelanjakan lebih banyak wang. Second day. Customers spent more money.</p> <p data-bbox="235 1726 462 1779">(a) (i) Mendaki / Hiking (ii) Pandian</p>	1	10

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	<p>(b) (i)</p> <p>– 10 tepi dilukis dengan betul. 10 edges are drawn correctly</p> <p>– Semua pemberat dilabel dengan betul. All weightages are labelled correctly.</p> <p>(ii)</p> <p>– 5 tepi dilukis dengan betul. 5 edges are drawn correctly.</p> <p>– Semua pemberat dilabel dengan betul. All weightages are labelled correctly.</p> <p>(iii) $10.1 + 7.5 + 6.2 + 9.2 = 33$ km $11.2 + 7.2 + 6.2 + 9.2 = 33.8$ km</p> <p>$Z \rightarrow B \rightarrow P \rightarrow A \rightarrow K$ $Z \rightarrow R \rightarrow P \rightarrow A \rightarrow K$</p>	<p>2</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>9</p>

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks																				
14	(a) (i) 1 (ii) $3 - 1 = 2$	1 1																					
	(b) (i) $b = \frac{360}{4}$ $= 90$ $y = a \sin bx + c$ $y = (1) \sin (90)x + 2$ $y = \sin 90x + 2$ (ii) $y = \sin 90\left(\frac{150}{60}\right) + 2$ $y = 1.29$	1 1 1																					
	(c) (i) <table border="1" data-bbox="279 599 993 682" style="margin-left: 20px;"> <tr> <td>x</td><td>0</td><td>0.5</td><td>1</td><td>1.5</td><td>2</td><td>2.5</td><td>3</td><td>3.5</td><td>4</td> </tr> <tr> <td>y</td><td>2</td><td>3</td><td>2</td><td>1</td><td>2</td><td>3</td><td>2</td><td>1</td><td>2</td> </tr> </table> $b = \frac{360}{2} = 180$ $y = \sin 180x + 2$ Kedalaman (m) Depth (m)  Graf dilengkapi dengan 2 titik minimum, 2 titik maksimum dan lengkung sinus yang betul. <i>The graph is completed with 2 minimum points, 2 maximum points and 2 sine curves correctly.</i> (ii) Rajah 8 menunjukkan bilangan melepaskan air dalam masa 4 jam ialah satu kali manakala rajah di (c)(i) menunjukkan bilangan melepaskan air dalam masa 4 jam ialah dua kali. <i>Diagram 8 shows the number of water releases in 4 hours is one time whereas diagram in (c)(i) shows the number of water releases in 4 hours is two times.</i>	x	0	0.5	1	1.5	2	2.5	3	3.5	4	y	2	3	2	1	2	3	2	1	2	2 1	8
x	0	0.5	1	1.5	2	2.5	3	3.5	4														
y	2	3	2	1	2	3	2	1	2														
15	(a) $x + 3 = -1$ $x = -4$ $5y = -2$ $y = -\frac{2}{5}$	1 1																					

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
(b) (i)	$3x + 2y = 55$ $4x + 3y = 55 + 20$ $4x + 3y = 75$ $\begin{bmatrix} 3 & 2 \\ 4 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 55 \\ 75 \end{bmatrix}$ $\begin{bmatrix} x \\ y \end{bmatrix} = \frac{1}{(3)(3) - (2)(4)} \begin{bmatrix} 3 & -2 \\ -4 & 3 \end{bmatrix} \begin{bmatrix} 55 \\ 75 \end{bmatrix}$ $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} (3 \times 55) + (-2 \times 75) \\ (-4 \times 55) + (3 \times 75) \end{bmatrix}$ $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 15 \\ 5 \end{bmatrix}$	1 1 1	
	Sekotak sushi / <i>A box of sushi</i> = RM15	1	
	Seketul ayam goreng / <i>A piece of fried chicken</i> = RM5	1	
(ii)	$15 \times \frac{80}{100} = \text{RM}12$ $5 \times \frac{60}{100} = \text{RM}3$ $[2 \ 8] \begin{bmatrix} 12 \\ 3 \end{bmatrix} = \text{RM}48$	1 1	
	Dia mempunyai wang cukup kerana hanya RM48 diperlukan. <i>She has enough money as only RM48 is needed.</i>	1	

Bahagian C

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
16	(a) (i) Segi tiga bersudut tegak <i>Right-angled triangle</i>	1	
	(ii) $\sqrt{2.5^2 + 6^2}$ $= 6.5$	1 1	
(b)	$\frac{3}{5} \times \frac{5}{9} + \frac{2}{5} \times \frac{4}{9} + \frac{3}{5} \times \frac{4}{9}$ $= \frac{7}{9}$	2 1	
(c)	$f(x) = -\frac{13}{200}x^2 + \frac{39}{20}x$ $x = -\frac{b}{2a}$ $= -\frac{\left(\frac{39}{20}\right)}{2\left(-\frac{13}{200}\right)}$ $= 15$ $f(15) = -\frac{13}{200}(15)^2 + \frac{39}{20}(15)$ $= 14.625$	1 1 1 1	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	<p>Tinggi maksimum / <i>Maximum height</i> $= 14.625 \text{ m} + 1.2 \text{ m}$ $= 15.825 \text{ m}$ $= 15.83 \text{ m}$</p> <p>(d) $\bar{x} = \frac{19(6) + 21(7) + 24(8) + 6(9) + 2(10)}{19 + 21 + 24 + 6 + 2}$ $= 7.319$</p> <p>Zarif menunjukkan prestasi yang baik secara purata. <i>Zarif performs better on average.</i></p> $\sigma = \sqrt{\frac{19(6)^2 + 21(7)^2 + 24(8)^2 + 6(9)^2 + 2(10)^2}{19 + 21 + 24 + 6 + 2} - 7.319^2}$ $= 1.042$ <p>Syafi lebih konsisten. <i>Syafi is more consistent.</i></p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>15</p>
17	<p>(a) (i) $a < 0$</p> <p>(ii) $x = \frac{8}{2}$ $= 4$</p> <p>Koordinat titik maksimum / <i>Coordinates of the maximum point</i> $= (4, 5)$</p> <p>(b) $\bar{x} = \frac{5(17) + 3(22) + 6(27) + 2(32)}{5 + 3 + 6 + 2}$ $= 23.56$</p> $\sigma = \sqrt{\frac{5(17)^2 + 3(22)^2 + 6(27)^2 + 2(32)^2}{5 + 3 + 6 + 2} - 23.56^2}$ $= 5.23$ <p>(c) Jejari / <i>Radius</i> $= \frac{10}{2}$ $= 5$</p> <p>Isi padu hemisfera / <i>Volume of hemisphere</i> $= \frac{1}{2} \times \frac{4}{3} \times \frac{22}{7} \times 5^3$ $= \frac{5\,500}{21} \text{ cm}^3$</p> <p>Isi padu silinder / <i>Volume of cylinder</i> $= \frac{22}{7} \times 5^2 \times 4 \times 5$ $= \frac{11\,000}{7} \text{ cm}^3$</p> <p>Isi padu kon / <i>Volume of cone</i> $= \frac{1}{3} \times \frac{22}{7} \times 5^2 \times 5$ $= \frac{2\,750}{21} \text{ cm}^3$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	<p>Isi padu botol roket / <i>Volume of rocket bottle</i></p> $= \frac{5\,500}{21} + \frac{11\,000}{7} + \frac{2\,750}{21}$ $= \frac{13\,750}{7} \text{ cm}^3$ <p>Isi padu air / <i>Volume of water</i></p> $= \frac{1}{3} \times \frac{13\,750}{7}$ $= \frac{13\,750}{21} \text{ cm}^3$ <p>Isi padu air di bahagian silinder / <i>Volume of water in a cylinder part</i></p> $= \frac{13\,750}{21} \text{ cm}^3 - \frac{2\,750}{21} \text{ cm}^3$ $= \frac{11\,000}{21} \text{ cm}^3$ $\frac{22}{7} \times 5^2 \times (h - 5) = \frac{11\,000}{21}$ $h - 5 = \frac{11\,000}{21} \div \frac{550}{7}$ $h = \frac{20}{3} + 5$ $h = 11\frac{2}{3}$	<p>2</p> <p>1</p> <p>1</p> <p>1</p>	
	<p>(d) $l = \frac{u^2}{g}(2 \sin \theta \cos \theta) / \frac{u^2}{g}(2 \sin \theta \cos \theta)$</p> $l = \frac{20^2}{10}(2 \sin 30^\circ \cos 30^\circ) / \frac{20^2}{10}(2 \sin 30^\circ \cos 30^\circ)$ $l = 40 \left(2 \times \frac{1}{2} \times \frac{\sqrt{3}}{2} \right)$ $l = 20\sqrt{3} \text{ m}$ $l = \frac{20^2}{10}(2 \sin 45^\circ \cos 45^\circ) / \frac{20^2}{10}(2 \sin 45^\circ \cos 45^\circ)$ $l = 40 \left(2 \times \frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} \right)$ $l = 40 \text{ m}$ <p>\therefore Sudut pelancaran terbaik ialah 45°. <i>The best launching angle is 45°.</i></p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>15</p>

KERTAS 1

1 A

$$11001_2 + 10111_2 = 110000_2$$

2 B

$$\text{RM}225 - \text{RM}15 = \text{RM}210$$

$$\begin{array}{r|l} 7 & 210 \\ \hline & 30 \quad - 0 \quad \uparrow \\ 7 & \underline{4} \quad - 2 \\ & 0 \quad - 4 \end{array}$$

$$\therefore 420_7$$

3 D

$$\begin{aligned} \frac{m^2 \times n^{-3}}{m^{-4} \times n^2} &= m^{2-(-4)}n^{-3-2} \\ &= m^6n^{-5} \end{aligned}$$

4 A

$$\frac{3}{2}, \frac{7}{4}, 2, x, \frac{5}{2}, y, \dots = \frac{6}{4}, \frac{7}{4}, \frac{8}{4}, x, \frac{10}{4}, y, \dots$$

$$x = \frac{9}{4}, y = \frac{11}{4}$$

$$\begin{aligned} x + y &= \frac{9}{4} + \frac{11}{4} \\ &= 5 \end{aligned}$$

5 C

$$\text{Panjang kubus} = \sqrt[3]{1\,728}$$

$$\begin{aligned} \text{Length of cube} \\ &= 12 \text{ m} \end{aligned}$$

$$\text{Luas permukaan} = 6 \times (12 \text{ m})^2$$

$$\begin{aligned} \text{Surface area} \\ &= 864 \text{ m}^2 \end{aligned}$$

6 C

$$\begin{aligned} \text{Gaji Zali pada bulan Jun / Zali's salary in June} &= \left(\frac{10}{100} \times 8\,000 \right) + 8\,000 \\ &= \text{RM}8\,800 \end{aligned}$$

$$\begin{aligned} \text{Aliran tunai / Cash flow} &= 8\,800 - 1\,000 - 1\,200 - 400 - 1\,000 - 1\,500 - 650 - 600 - 700 \\ &= \text{RM}1\,750 \end{aligned}$$

7 B

$$\begin{aligned} \text{RM}184.50 \times 2 &= \text{RM}7\,380 \times \frac{R}{100} \\ \frac{R}{100} &= 0.05 \end{aligned}$$

$$R = 5$$

Kadar cukai pintu, $R = 5\%$

Property assessment tax, R

8 B

A: Kereta Ben dicuri (Polisi Pihak Ketiga, Kebakaran dan Kecurian)

Ben's car was stolen (Third Party, Fire and Theft Policy)

C: Kos baik pulih kereta Ben akibat kemalangan (Polisi Komprehensif)

The repair cost of Ben's car due to accident (Comprehensive Policy)

D: Kereta Ben terbakar akibat kebocoran tangki minyak (Polisi Komprehensif)

Ben's car caught on fire caused by fuel tank leakage (Comprehensive Policy)

9 D

$$\begin{aligned} \text{NCD } 45\% &= \frac{45}{100} \times \text{RM}135 \\ &= \text{RM}60.75 \end{aligned}$$

Amaun insurans / *Amount of insurance*

$$= \text{RM}135 - \text{RM}60.75$$

$$= \text{RM}74.25$$

10 C

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

$$2m + \frac{3}{4}m = 2 + 2$$

$$\frac{11}{4}m = 4$$

$$m = \frac{16}{11}$$

11 D

$$\begin{aligned} \frac{k+2}{k} - \frac{1-k}{3k} &= \frac{3k+6-1+k}{3k} \\ &= \frac{4k+5}{3k} \end{aligned}$$

12 C

$$10 = \sqrt{(9-x)^2 + (8-0)^2}$$

$$(9-x)^2 + (8-0)^2 = 100$$

$$(9-x)^2 + 64 = 100$$

$$(9-x)^2 = 36$$

$$9-x = \pm 6$$

$$9-x = 6 \quad , \quad 9-x = -6$$

$$x = 3 \quad , \quad x = 15$$

Nilai x perlu lebih kecil daripada 9.

The value of x should less than 9.

13 D

A: $f(x) = x^2 + 2x + 8$ (bentuk graf adalah $-x^2$ / *graph shape is $-x^2$*)

B: $f(x) = x^2 - 2x + 8$ (bentuk graf adalah $-x^2$ / *graph shape is $-x^2$*)

C: $f(x) = -x^2 + 2x + 8$ (nilai x untuk fungsi kuadratik ini ialah -2 dan 4 / *the value of x for this quadratic function is -2 and 4*)

14 A

B: $60x + 75y \geq 330$ (sekurang-kurangnya / *at least*)

C: $60x + 75y < 330$ (kurang daripada / *less than*)

D: $60x + 75y > 330$ (lebih daripada / *greater than*)

15 B

$$\begin{aligned}\text{Laju purata / Average speed} &= \frac{120 \text{ km}}{2 \text{ j/h}} \\ &= 60 \text{ km j}^{-1} / \text{km h}^{-1}\end{aligned}$$

16 C

$$\begin{aligned}\text{Nyahpecutan / Deceleration} &= \frac{20 \text{ m s}^{-1}}{15 - 10 \text{ s}} \\ &= \frac{20 \text{ m s}^{-1}}{5 \text{ s}} \\ &= 4 \text{ m s}^{-2}\end{aligned}$$

17 A

$$F = kx$$

$$k = \frac{F}{x}$$

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

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

$$F = \frac{1}{5}x$$

$$= \frac{1}{5}(15)$$

$$= 3 \text{ N}$$

18 B

$$p \propto \frac{1}{\sqrt{w}}$$

$$p = \frac{k}{\sqrt{w}}$$

$$k = p\sqrt{w}$$

$$= 4\sqrt{9}$$

$$= 4(3)$$

$$= 12$$

$$p = \frac{12}{\sqrt{w}}$$

19 C

$$r \propto \frac{S}{t^3}$$

$$r = \frac{kS}{t^3}$$

$$k = \frac{rt^3}{S}$$

$$= \frac{6(2)^3}{4}$$

$$= 12$$

$$r = \frac{12s}{t^3}$$

$$3 = \frac{12m}{8^3}$$

$$12m = (3)(8)^3$$

$$12m = 1\,536$$

$$m = 128$$

20 A

$$\begin{aligned} & 2 \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix} - \begin{bmatrix} 4 & -7 \\ -1 & 3 \end{bmatrix} + \begin{bmatrix} -1 & 4 \\ 5 & 2 \end{bmatrix} \\ &= \begin{bmatrix} 4 & 6 \\ 2 & 4 \end{bmatrix} - \begin{bmatrix} 4 & -7 \\ -1 & 3 \end{bmatrix} + \begin{bmatrix} -1 & 4 \\ 5 & 2 \end{bmatrix} \\ &= \begin{bmatrix} -1 & 17 \\ 8 & 3 \end{bmatrix} \end{aligned}$$

21 D

$$\frac{-13 + x}{3} = -3$$

$$-13 + x = -9$$

$$x = 4$$

$$4y - x = 20$$

$$4y - 4 = 20$$

$$4y = 24$$

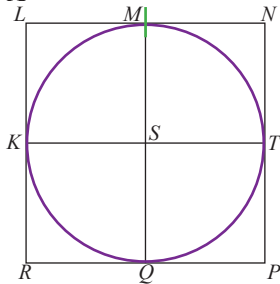
$$y = 6$$

22 B

$$\begin{aligned} \text{Sudut pedalaman pentagon} &= \frac{(5 - 2) \times 180^\circ}{5} \\ \text{Interior angle of pentagon} &= 108^\circ \end{aligned}$$

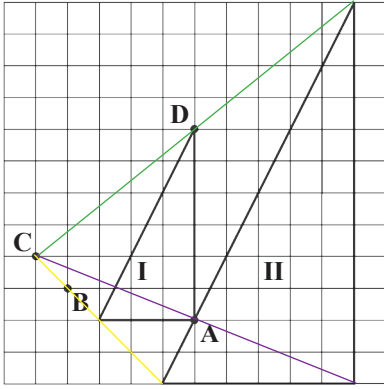
$$\begin{aligned} x &= 180^\circ - 72^\circ - 50^\circ \\ &= 58^\circ \end{aligned}$$

23 A



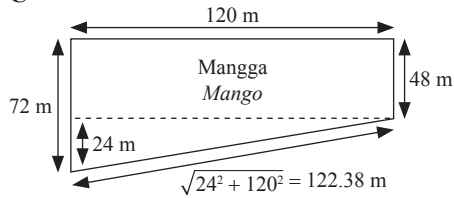
M berada tepat 2 m dari *S* dan terletak di atas *S* secara menegak di antara titik *L* dan titik *N*.
M is exactly 2 m from S and is located vertically above S, between point L and point N.

24 C



Lukis garisan panjang yang menyambungkan bucu setiap objek dengan pasangan imej.
Draw long lines connecting the corners of each object with the image pair.

25 C



Panjang pagar yang diperlukan / *The length of the fence needed*
 $= 72 \text{ m} + 120 \text{ m} + 48 \text{ m} + 122.38 \text{ m}$
 $= 362.38 \text{ m}$

26 A

B: Ditolak kerana translasi untuk paksi-x sepatutnya bergerak 10 langkah ke kanan.
Rejected because the translation for the x-axis should move 10 steps to the right.

C: Ditolak kerana U bergerak dahulu sebelum V dan pergerakan pada paksi-x adalah salah.
Rejected because U moved first before V and movement at x-axis are wrong.

D: Ditolak kerana U bergerak dahulu sebelum V.
Rejected because U moved first before V.

27 D

Koordinat P / *Coordinates P* (0.57, 0.82)

$$\cos \theta = 0.57$$

$$\sin \theta = 0.82$$

θ di sukuan kedua / θ in second quadrant

$$\theta = 180^\circ - 55^\circ$$

$$= 125^\circ$$

$$\cos \theta = \cos (125^\circ) = -\cos (55^\circ)$$

$$= -0.57$$

28 D

A: Kedudukan Q bukan berada pada -0.5 pada paksi-y.
The position of Q is not at -0.5 on y-axis.

B: Kedudukan Q bukan berada pada -0.5 pada paksi-y.
The position of Q is not at -0.5 on y-axis.

$$\text{C: } y = \sin^{-1}(-0.5) \neq 225^\circ$$

29 C

A: Jawapan ini untuk “kontrapositif”.

This answer is for “contrapositive”.

B: Jawapan ini untuk “implikasi”.

This answer is for “implication”.

D: Jawapan ini untuk “akas”.

This answer is for “converse”.

30 D

$$\begin{aligned}V &= \frac{1}{3} \pi r^2 h / \pi r^2 h \\ &= \frac{1}{3} \pi (3)^2 (7) \\ &= 21\pi\end{aligned}$$

Susunan ke-6 = 13 kon

6th arrangement = 13 cones

$$\begin{aligned}\text{Isi padu / Volume} &= 13 \times 21\pi \\ &= 273\pi\end{aligned}$$

31 B

$$\begin{aligned}P \cap R' &= \{a, b, c, d, e\} \cap \{a, b, c\} \\ &= \{a, b, c\}\end{aligned}$$

32 B

$$\begin{aligned}n(S \cup M) &= n(S) + n(M) - n(S \cap M) \\ 29 &= 18 + 15 - n(S \cap M) \\ n(S \cap M) &= 33 - 29 \\ n(S \cap M) &= 4\end{aligned}$$

33 B

Darjah B / Degree of B: 3

Darjah L / Degree of L: 2

Darjah K / Degree of K: 3

Darjah H / Degree of H: 4

Darjah D / Degree of D: 3

Darjah G / Degree of G: 3

Darjah M / Degree of M: 2

Jumlah darjah / Sum of degree

$$= 3 + 2 + 3 + 4 + 3 + 3 + 2$$

$$= 20$$

Pasangan bucu D / The vertex pair of D

$$= \{(D, G), (D, K), (D, H)\}$$

34 A

$$\frac{x}{5} = 1.52$$

$$x = 7.6$$

$$\begin{aligned}\text{Min tinggi baharu / New mean height} &= \frac{7.6 + 1.6 + 1.58}{7} \\ &= 1.54\end{aligned}$$

35 C

35, 35, 40, 50, 62, 68, 76, 76, 90, 90

Median

$$\begin{aligned}\text{Median} &= \frac{62 + 68}{2} \\ &= 65\end{aligned}$$

36 B

$$\begin{aligned}\text{Murid Tingkatan 5} &= \frac{5}{8} \times 24 \\ \text{Form 5 students} &= 15\end{aligned}$$

$$\begin{aligned}\text{Murid Tingkatan 3} &= 24 - 15 + 4 \\ \text{Form 3 students} &= 13\end{aligned}$$

$$\begin{aligned}\text{Semua murid} &= 24 + 4 \\ \text{All students} &= 28\end{aligned}$$

$$\begin{aligned}\text{Kebarangkalian seorang murid Tingkatan 3 dipilih} &= \frac{13}{28} \\ \text{Probability that a Form 3 student is chosen} &\end{aligned}$$

37 A

$$\begin{aligned}\text{Nilai mod} &= 20 \\ \text{Mode value} &\end{aligned}$$

$$\begin{aligned}\text{Nilai terkecil Indeks Jisim Badan} &= 17 \\ \text{The smallest value of Body Mass Index} &\end{aligned}$$

$$\begin{aligned}\text{Beza antara nilai mod dan nilai terkecil Indeks Jisim Badan} & \\ \text{The difference between the mode value and the smallest value of Body Mass Index} & \\ &= 20 - 17 \\ &= 3\end{aligned}$$

38 D

$$\begin{aligned}\text{Varians} &= \frac{245\,508}{9} - \left(\frac{1\,484}{9}\right)^2 \\ \text{Variance} & \\ &= 90.32\end{aligned}$$

39 B

A, C dan D ialah peristiwa saling eksklusif.
A, C and D are mutually exclusive events.

40 C

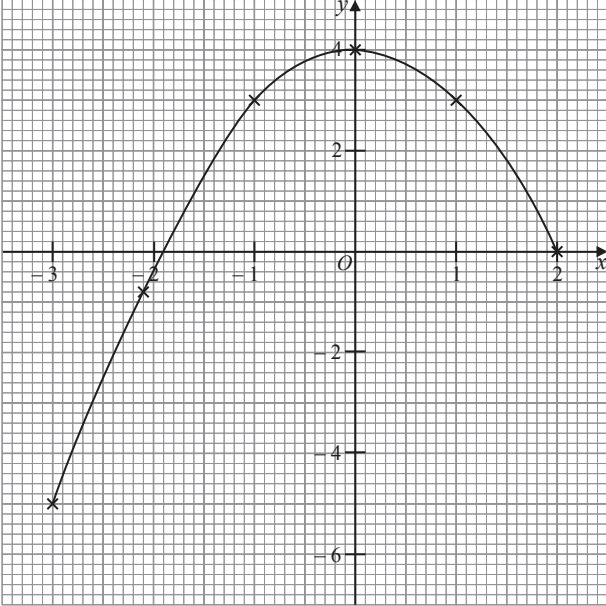
A: Laju perlu bermula dari 79.5 km j⁻¹ hingga 139.5 km j⁻¹.
The speed should start from 79.5 km h⁻¹ to 139.5 km h⁻¹.

B: Laju perlu bermula dari 79.5 km j⁻¹ hingga 139.5 km j⁻¹.
The speed should start from 79.5 km h⁻¹ to 139.5 km h⁻¹.

D: Nilai median adalah salah.
The median value is incorrect.

KERTAS 2

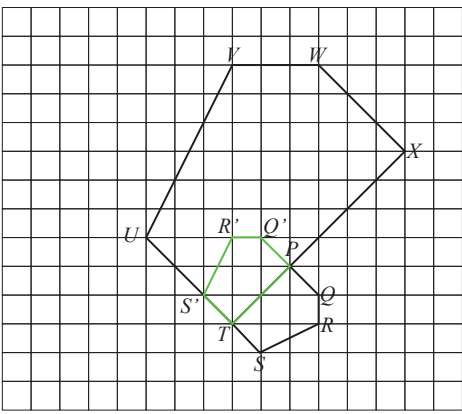
Bahagian A

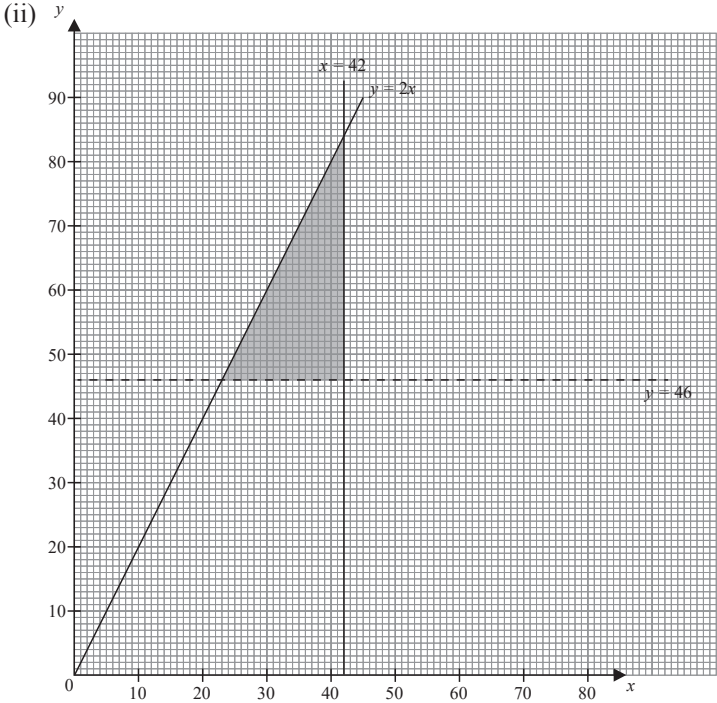
No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
1	(a) (i) Pernyataan / <i>Statement</i> (ii) Bukan pernyataan / <i>Not a statement</i>	1 1	4
	(b) (i) Jika $2 + 2 \neq 2 \times 2$, maka $3 + 3 \neq 3 \times 3$ <i>If $2 + 2 \neq 2 \times 2$, then $3 + 3 \neq 3 \times 3$</i> (ii) Benar / <i>True</i>	1 1	
2		3	3
3	(a) $\angle VSW$ atau / or $\angle WSV$	1	3
	(b) $\tan \theta = \frac{3.5}{2}$ $\theta = 60^\circ 15'$	1 1	
		1	
4	(a) Kos pembedahan selepas deduktibel = RM38 000 – RM3 000 <i>The surgery cost after the deductible</i> = RM35 000	1	3
	(b) Kos perubatan yang ditanggung oleh Suzie <i>The medical cost borne by Suzie</i> $= \frac{25}{100} \times \text{RM}35\,000 + \text{RM}3\,000$ = RM11 750	1 1	
5	(a) Isi padu / <i>Volume</i> = $(w + 10)(w)(60)$ $120\,000 = (w + 10)(60w)$ $60w^2 + 600w - 120\,000 = 0$ $w^2 + 10w - 2\,000 = 0$	1 1	4
	(b) $(w - 40)(w + 50) = 0$ $w = 40, w = -50$ \therefore Lebar kuboid / <i>The width of the cuboid</i> = 40 cm	1 1	
		1	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks																									
6	(a) (i) Set bucu = {Melaka, Kuala Lumpur, Shah Alam, Ipoh} <i>Set of vertices</i>	1	4																									
	(ii) $2 \times 6 = 12$	1																										
	(b) Laluan alternatif paling murah = Melaka → Kuala Lumpur → Ipoh <i>The cheapest alternative route</i> $= \text{RM}14.40 + \text{RM}25.50$ $= \text{RM}39.90$	1																										
7	(a) Sewa rumah / Premium insurans <i>House rent / Insurance premium</i>	1	4																									
	(b) Jumlah simpanan / <i>Savings amount</i> $= \frac{80}{100} \times [3\,800 - (480 + 250 + 750 + 350 + 420 + 400 + 200)]$ $= \text{RM}760$	2																										
		1																										
8	(a), (b)(i)	2	6																									
	<table border="1"> <thead> <tr> <th>Masa (minit) <i>Time (minute)</i></th> <th>Titik tengah <i>Midpoint</i></th> <th>Kekerapan yang direkod <i>Recorded frequency</i></th> <th>Kekerapan sebenar <i>Actual frequency</i></th> </tr> </thead> <tbody> <tr> <td>11 – 15</td> <td>13</td> <td>2</td> <td>2</td> </tr> <tr> <td>16 – 20</td> <td>18</td> <td>6</td> <td>7</td> </tr> <tr> <td>21 – 25</td> <td>23</td> <td>12</td> <td>12</td> </tr> <tr> <td>26 – 30</td> <td>28</td> <td>15</td> <td>15</td> </tr> <tr> <td>31 – 35</td> <td>33</td> <td>17</td> <td>18</td> </tr> <tr> <td>36 – 40</td> <td>38</td> <td>6</td> <td>6</td> </tr> </tbody> </table>			Masa (minit) <i>Time (minute)</i>	Titik tengah <i>Midpoint</i>	Kekerapan yang direkod <i>Recorded frequency</i>	Kekerapan sebenar <i>Actual frequency</i>	11 – 15	13	2	2	16 – 20	18	6	7	21 – 25	23	12	12	26 – 30	28	15	15	31 – 35	33	17	18	36 – 40
Masa (minit) <i>Time (minute)</i>	Titik tengah <i>Midpoint</i>	Kekerapan yang direkod <i>Recorded frequency</i>	Kekerapan sebenar <i>Actual frequency</i>																									
11 – 15	13	2	2																									
16 – 20	18	6	7																									
21 – 25	23	12	12																									
26 – 30	28	15	15																									
31 – 35	33	17	18																									
36 – 40	38	6	6																									
(ii)	<p>The graph plots the recorded frequency (x-axis) against the actual frequency (y-axis). The x-axis has major ticks every 5 units from 8 to 43. The y-axis has major ticks every 2 units from 0 to 18. The data points are connected by straight lines, forming a curve that rises to a peak at (33, 18) and then falls.</p>	4																										

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
9	(a) 25 m s^{-1}	1	5
	(b) (i) Kadar perubahan laju = $\frac{50 \text{ m s}^{-1}}{5 \text{ s}}$ Rate of change of speed = 10 m s^{-2}	1	
	(ii) Beza jarak / The difference between distance $= \left[\frac{1}{2} (3 + 6)(30) \right] - \left[\frac{1}{2} (5)(25) \right]$	2	
	= $135 \text{ m} - 62.5 \text{ m}$ = 72.5 m	1	
10	(a) $y = -a \cos / \cos bx + 10$ $a = \frac{18 - 2}{2}$ = 8 $b = \frac{360^\circ}{60}$ = 6	1	4
	(b) $y = -8 \cos / \cos 6x + 10$ $y = -8 \cos / \cos 6(73) + 10$ $y = -8 \cos / \cos (438) + 10$ $y = 8.34 \text{ m}$	1	
		1	
		1	

Bahagian B

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
11	(a) Sisi sepadan / Corresponding side: UV atau / or VU Sudut sepadan / Corresponding angle: $\angle PSR$ atau / or $\angle RSP$	1	9
		1	
	(b) (i)	1	
			
	(ii) Pembesaran dengan faktor skala 3 pada pusat T . Enlargement with scale factor 3 at centre T .	3	
	(iii) (a) $1 : 9$	1	
(b) Luas pentagon $PQRST$ / The area of pentagon $PQRST = \frac{240 \text{ cm}^2}{(1 + 9)}$ = 24 cm^2	1		

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	<p>(b) (i) Bilangan beg tangan eksklusif yang dihasilkan lebih besar daripada 46. <i>The number of exclusive handbags produced is greater than 46.</i></p> <p>(ii) </p>	1	
	<p>(c) (i) Bilangan maksimum beg tangan eksklusif = 83 atau 84 <i>The maximum number of exclusive handbags = 83 or 84</i></p> <p>(ii) Tidak / <i>No</i></p> <p>Titik (25, 60) berada di luar rantau berlerek. <i>Point (25, 60) locates outside of the shaded region.</i></p>	1 1 1	9
15	<p>(a) Jumlah pelepasan cukai yang boleh dituntut <i>Total tax relief that can be claimed</i> = 9 000 + 3 105 + 1 545 + 3 000 = 16 650</p> <p>(b) (i) (a) Cukai pendapatan Encik Ali / <i>Encik Ali's tax assessment</i> = $3\,700 + \frac{19}{100} \times (73\,000 - 70\,000)$ = RM4 270</p> <p>(b) Cukai pendapatan isteri Encik Ali / <i>Encik Ali's wife tax assessment</i> = $1\,500 + \frac{11}{100} \times (73\,000 - 5\,000 - 50\,000)$ = RM3 480</p>	1 1 1 1	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
	(ii) Jumlah cukai pendapatan Encik Ali dan isteri <i>Total income tax of Encik Ali and his wife</i> $= 9\,400 + \frac{25}{100} \times (150\,000 - 100\,000)$ $= \text{RM}21\,900$	1 1	10
	(iii) Taksiran cukai individu. <i>Individual tax assessment.</i> Cukai pendapatan yang dibayar adalah lebih rendah. <i>The income tax paid is lower.</i>	1 1	

Bahagian C

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks
16	(a) $C \propto L$ $C = kL$ $k = \frac{2}{5}$ atau / or 0.4 $\therefore C = \frac{2}{5}L$ atau / or $C = 0.4L$	1 1	
	(b) $600b + 450p = 3\,975$ atau / or $250b + 470p = 2\,645$	1	
	$\begin{bmatrix} 600 & 450 \\ 250 & 470 \end{bmatrix} \begin{bmatrix} b \\ p \end{bmatrix} = \begin{bmatrix} 3\,975 \\ 2\,645 \end{bmatrix}$	1	
	$\begin{bmatrix} b \\ p \end{bmatrix} = \frac{1}{(600)(470) - (450)(250)} \begin{bmatrix} 470 & -450 \\ -250 & 600 \end{bmatrix} \begin{bmatrix} 3\,975 \\ 2\,645 \end{bmatrix}$	1	
	$\begin{bmatrix} b \\ p \end{bmatrix} = \frac{1}{169\,500} \begin{bmatrix} 678\,000 \\ 593\,250 \end{bmatrix}$		
	$\begin{bmatrix} b \\ p \end{bmatrix} = \begin{bmatrix} 4 \\ 3.5 \end{bmatrix}$		
	Harga sekilogram betik / <i>The price of one kilogram of papayas</i> , $b = \text{RM}4$	1	
	Harga sekilogram pisang / <i>The price of one kilogram of bananas</i> , $p = \text{RM}3.50$	1	
	(c) (i) Jumlah hasil tuaian bagi betik / <i>Total harvest of papayas</i> $= \frac{15\,824}{3.80 + 0.80}$ $= 3\,440 \text{ kg}$	1 1	
	(ii) Jisim betik pada dalam minggu ketiga <i>The mass of papaya in the third week</i> $= 3\,440 - (1\,080 + 900 + 980)$ $= 480 \text{ kg}$	1	

No.	Skema Pemarkahan Marking Scheme	Markah Marks	Markah Total Total Marks		
	<p>(b) $90x + 30y = 276$ atau / or $15x + 25y = 89$</p> $\begin{bmatrix} 90 & 30 \\ 15 & 25 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 276 \\ 89 \end{bmatrix}$ $\begin{bmatrix} x \\ y \end{bmatrix} = \frac{1}{(90)(25) - (15)(30)} \begin{bmatrix} 25 & -30 \\ -15 & 90 \end{bmatrix} \begin{bmatrix} 276 \\ 89 \end{bmatrix}$ $\begin{bmatrix} x \\ y \end{bmatrix} = \frac{1}{1800} \begin{bmatrix} 4230 \\ 3870 \end{bmatrix}$ $\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 2.35 \\ 2.15 \end{bmatrix}$ <p>Harga sebiji ban keju / <i>The price of one piece of cheese bun</i> = RM2.35</p> <p>Harga sebiji ban kaya / <i>The price of one piece of kaya bun</i> = RM2.15</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>			
	<p>(c) Jumlah bilangan kek lemon yang dijual pada hari Isnin dan Rabu <i>Total number of lemon cakes sold on Monday and Wednesday</i></p> $= \frac{1}{4} \times 60$ $= 15$ <p>1 bahagian / <i>1 part</i> = $15 \div 3$ = 5</p> <p>\therefore Bilangan kek lemon yang dijual pada hari Isnin = 5 <i>Number of lemon cakes sold on Monday</i></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> <p>Untung jualan kek lemon <i>Profit of lemon cakes</i></p> <p>= $48(\text{RM}50.00 - \text{RM}24.00)$ = RM1 248</p> </td> <td style="width: 50%;"> <p>Untung jualan kek coklat <i>Profit of chocolate cakes</i></p> <p>= $60(\text{RM}52.50 - \text{RM}30.00)$ = RM1 350</p> </td> </tr> </table> <p>Salah, jualan kek coklat memberikan lebih keuntungan daripada jualan kek lemon untuk lima hari itu. <i>Incorrect, the sales of chocolate cakes made more profit than the sales of lemon cakes for these five days.</i></p>	<p>Untung jualan kek lemon <i>Profit of lemon cakes</i></p> <p>= $48(\text{RM}50.00 - \text{RM}24.00)$ = RM1 248</p>	<p>Untung jualan kek coklat <i>Profit of chocolate cakes</i></p> <p>= $60(\text{RM}52.50 - \text{RM}30.00)$ = RM1 350</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	
<p>Untung jualan kek lemon <i>Profit of lemon cakes</i></p> <p>= $48(\text{RM}50.00 - \text{RM}24.00)$ = RM1 248</p>	<p>Untung jualan kek coklat <i>Profit of chocolate cakes</i></p> <p>= $60(\text{RM}52.50 - \text{RM}30.00)$ = RM1 350</p>				
	<p>(d) Jumlah potongan bulanan / <i>Total monthly deductions</i></p> $= \frac{12}{100} \times 6500$ $= \text{RM}780$ <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> <p>Jumlah bayaran balik Bank V <i>Total repayments Bank V</i></p> $= \frac{25000 + \left(25000 \times \frac{4.6}{100} \times 5\right)}{5 \times 12}$ <p>= RM512.50</p> </td> <td style="width: 50%;"> <p>Jumlah bayaran balik Bank W <i>Total repayments Bank W</i></p> $= \frac{25000 + \left(25000 \times \frac{4.8}{100} \times 3\right)}{3 \times 12}$ <p>= RM794.44</p> </td> </tr> </table> <p>\therefore Lyn perlu pilih Bank V. / <i>Lyn should choose Bank V.</i></p>	<p>Jumlah bayaran balik Bank V <i>Total repayments Bank V</i></p> $= \frac{25000 + \left(25000 \times \frac{4.6}{100} \times 5\right)}{5 \times 12}$ <p>= RM512.50</p>	<p>Jumlah bayaran balik Bank W <i>Total repayments Bank W</i></p> $= \frac{25000 + \left(25000 \times \frac{4.8}{100} \times 3\right)}{3 \times 12}$ <p>= RM794.44</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>15</p>
<p>Jumlah bayaran balik Bank V <i>Total repayments Bank V</i></p> $= \frac{25000 + \left(25000 \times \frac{4.6}{100} \times 5\right)}{5 \times 12}$ <p>= RM512.50</p>	<p>Jumlah bayaran balik Bank W <i>Total repayments Bank W</i></p> $= \frac{25000 + \left(25000 \times \frac{4.8}{100} \times 3\right)}{3 \times 12}$ <p>= RM794.44</p>				

ERRATA

- 9 Jadual 3 menunjukkan sebahagian daripada kadar premium bagi polisi motor yang digunakan di Malaysia.

Table 3 shows a part of premium rate for the motor policy that is used in Malaysia.

Kapasiti enjin tidak melebihi (cc) Engine capacity not exceeding (cc)	Polisi pihak ketiga (RM) Third party policy (RM)	
	Semenanjung Malaysia Peninsular Malaysia	Sabah dan Sarawak Sabah and Sarawak
1 650	135.00	75.60
2 200	151.20	85.20

Jadual 3
Table 3

Encik Jamil bekerja dan menetap di Perak. Dia ingin membeli polisi insurans pihak ketiga bagi keretanya yang berkapasiti 1 800cc. Nilai Diskaun Tanpa Tuntutan (NCD) Encik Jamil ialah 45%. Hitung premium kasar yang perlu dibayar oleh Encik Jamil.

Encik Jamil works and lives in Perak. He wants to buy the third party policy for his car with the capacity of 1800cc. Encik Jamil's No Claim Discount (NCD) value is 45%. Calculate the gross premium payable by Encik Jamil.

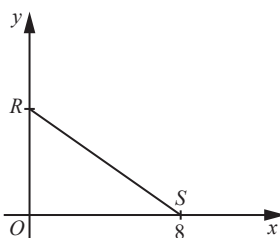
- A RM60.75 B RM68.04
C RM74.25 D RM83.16

- 10 $(x + 3y)(y - 3x) =$
 A $3y^2 - 7xy + 3x^2$ B $3y^2 - 10xy + 3x^2$
 C $3y^2 - 5xy - 3x^2$ D $3y^2 - 8xy - 3x^2$

- 11 Diberi bahawa $V = \pi r^2 h$, ungkapkan r dalam sebutan h dan V .
Given that $V = \pi r^2 h$, express r in terms of h and V .

- A $r = \sqrt{\frac{V}{\pi h}}$ B $r = \sqrt{\frac{\pi h}{V}}$
 C $r = \frac{\sqrt{V}}{\pi h}$ D $r = \frac{\sqrt{\pi h}}{V}$

- 12 Rajah 2 menunjukkan garis lurus RS pada suatu satah Cartes.
Diagram 2 shows a straight line RS on a Cartesian plane.



Rajah 2
Diagram 2

Diberi bahawa $OR = \frac{3}{4} OS$.

Cari kecerunan garis lurus RS.

It is given that $OR = \frac{3}{4} OS$.

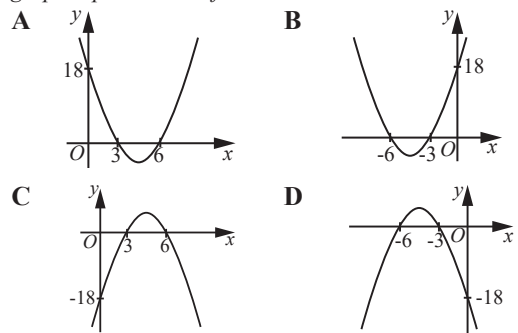
Find the gradient of straight line RS.

- A $-\frac{4}{3}$ B $-\frac{3}{4}$
 C $\frac{3}{4}$ D $\frac{4}{3}$

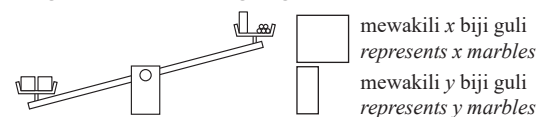
- 13 Diberi bahawa suatu fungsi kuadratik $y = ax^2 + 9x + c$ dengan keadaan a dan c adalah pemalar.

Jika $a = -1$ dan $c = -18$, graf manakah yang mewakili fungsi tersebut?

It is given that a quadratic function $y = ax^2 + 9x + c$ such that a and c are constants. If $a = -1$ and $c = -18$, which graph represents the function?



- 14 Rajah 3 menunjukkan sebuah penimbang berat.
Diagram 3 shows a weighing scale.



Rajah 3
Diagram 3

Antara ketaksamaan linear berikut, yang manakah paling tepat mewakili situasi tersebut?

Which of the following linear inequalities is the most accurate to represent the situation?

- A $2x > y + 5$ B $2x < y + 5$
 C $2y > x + 5$ D $2y < x + 5$

- 15 Diberi $x < 5, y \leq 0, y \geq -x$ dan $y < x - 3$.
Antara rantau berlorek berikut, yang manakah memuaskan sistem ketaksamaan linear tersebut?

It is given that $x < 5, y \leq 0, y \geq -x$ and $y < x - 3$. Which of the following shaded regions satisfies the system of linear inequalities?

