

NAMA: ..... TINGKATAN: .....

**MODUL KM<sup>2</sup> JABATAN PENDIDIKAN NEGERI MELAKA**  
**TINGKATAN 5**  
**TAHUN 2023**

**SET 1**  
**(PENGUKUHAN)**  
**MATEMATIK**  
**KERTAS 2**  
**(1449/2)**

**Dua jam tiga puluh minit**

**JANGAN BUKA SOALAN INI SEHINGGA DIBERITAHU**

- 1 Tulis **nama** dan **tingkatan** anda pada ruang yang disediakan.
- 2 Kertas ini adalah dalam dwibahasa.
- 3 Soalan dalam Bahasa Melayu mendahului soalan yang sepadan dalam Bahasa Inggeris.
- 4 Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam Bahasa Melayu atau Bahasa Inggeris.

| Untuk Kegunaan Pemeriksa |           |              |                  |
|--------------------------|-----------|--------------|------------------|
| Bahagian                 | Soalan    | Markah Penuh | Markah diperoleh |
| <b>A</b>                 | <b>1</b>  | 3            |                  |
|                          | <b>2</b>  | 3            |                  |
|                          | <b>3</b>  | 3            |                  |
|                          | <b>4</b>  | 4            |                  |
|                          | <b>5</b>  | 5            |                  |
|                          | <b>6</b>  | 4            |                  |
|                          | <b>7</b>  | 4            |                  |
|                          | <b>8</b>  | 3            |                  |
|                          | <b>9</b>  | 6            |                  |
|                          | <b>10</b> | 5            |                  |
| <b>B</b>                 | <b>11</b> | 9            |                  |
|                          | <b>12</b> | 10           |                  |
|                          | <b>13</b> | 9            |                  |
|                          | <b>14</b> | 9            |                  |
|                          | <b>15</b> | 8            |                  |
| <b>C</b>                 | <b>16</b> | 15           |                  |
|                          | <b>17</b> | 15           |                  |
| Jumlah                   |           |              |                  |

Kertas soalan ini mengandungi 28 halaman bercetak.

SET PENGUKUHAN

UNIT SAINS DAN MATEMATIK, SEKTOR PEMBELAJARAN, JABATAN PENDIDIKAN NEGERI MELAKA



## NOMBOR DAN OPERASI NUMBER AND OPERATIONS

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 <math>a^m \times a^n = a^{m+n}</math></p> <p>3 <math>(a^m)^n = a^{mn}</math></p> <p>5 <math>a^{\frac{m}{n}} = (a^{\frac{1}{n}})^m = (a^{\frac{1}{n}})^m</math></p> <p>7 Faedah mudah / <i>Simple interest</i>, <math>I = Prt</math></p> <p>9 Jumlah bayaran balik / <i>Total repayment</i>, <math>A = P + Prt</math></p> <p>10 <math display="block">\text{Premium} = \frac{\text{Nilai muka polisi}}{\text{RMx}} \times (\text{Kadar premium per RMx})</math> <math display="block">\text{Premium} = \frac{\text{Face value of policy}}{\text{RMx}} \times (\text{Premium rate per RMx})</math></p> <p>11 <math display="block">\text{Jumlah insurans yang harus dibeli} = \left( \frac{\text{Peratusan}}{\text{ko-insurans}} \right) \times \left( \frac{\text{Nilai boleh}}{\text{insurans harta}} \right)</math> <math display="block">\text{Amount of required insurance} = \left( \frac{\text{Percentage of}}{\text{co-insurance}} \right) \times \left( \frac{\text{Insurable value}}{\text{of property}} \right)</math></p> | <p>2 <math>a^m \div a^n = a^{m-n}</math></p> <p>4 <math>a^{\frac{1}{n}} = \sqrt[n]{a}</math></p> <p>6 <math>a^{\frac{m}{n}} = \sqrt[n]{a^m} = (\sqrt[n]{a})^m</math></p> <p>8 Nilai matang / <i>Maturity value</i>, <math>M</math><br/> <math display="block">= P \left( 1 + \frac{r}{n} \right)^{nt}</math></p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## PERKAITAN DAN ALGEBRA RELATIONSHIP AND ALGEBRA

- |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 Jarak / <i>Distance</i> = <math>\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}</math></p> <p>3 Laju Purata = <math>\frac{\text{Jumlah jarak}}{\text{Jumlah masa}}</math><br/> <i>Average speed</i> = <math>\frac{\text{Total distance}}{\text{Total time}}</math></p> <p>4 <math>A^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d &amp; -b \\ -c &amp; a \end{pmatrix}</math></p> | <p>Titik Tengah / <i>midpoint</i></p> <p>2 <math>(x, y) = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)</math></p> <p>4 <math>m = \frac{y_2 - y_1}{x_2 - x_1}</math></p> <p>5 <math>m = -\frac{\text{pintasan-y}}{\text{pintasan-x}}</math><br/> <math>m = -\frac{\text{y-intercept}}{\text{x-intercept}}</math></p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



**SUKATAN DAN GEOMETRI**  
**MEASUREMENT AND GEOMETRY**

- 1 Teorem Pythagoras / *Pythagoras Theorem*  $c^2 = a^2 + b^2$
- 2 Hasil tambah sudut pedalaman poligon / *Sum of interior angles of a polygon*  
 $= (n - 2) \times 180^\circ$
- 3 Lilitan bulatan  $= \pi d = 2\pi j$   
*Circumference of circle*  $= \pi d = 2\pi r$
- 4 Luas bulatan  $= \pi j^2$   
*Area of circle*  $= \pi r^2$
- 5  $\frac{\text{Panjang lengkok}}{2\pi j} = \frac{\theta}{360^\circ}$   
 $\frac{\text{Arc length}}{2\pi r} = \frac{\theta}{360^\circ}$
- 6  $\frac{\text{Luas sektor}}{\pi j^2} = \frac{\theta}{360^\circ}$   
 $\frac{\text{Area of sector}}{\pi r^2} = \frac{\theta}{360^\circ}$
- 7 Luas layang =  $\frac{1}{2} \times$  hasil darab panjang dua pepenjuru  
*Area of kite*  $= \frac{1}{2} \times \text{product of two diagonals}$
- 8 Luas trapezium  $= \frac{1}{2} \times$  hasil tambah dua sisi selari  $\times$  tinggi  
*Area of trapezium*  $= \frac{1}{2} \times \text{sum of parallel sides} \times \text{height}$
- 9 Luas permukaan silinder  $= 2\pi j^2 + 2\pi jt$   
*Surface area of cylinder*  $= 2\pi r^2 + 2\pi rh$
- 10 Luas permukaan kon  $= \pi j^2 + \pi js$   
*Surface area of cone*  $= \pi r^2 + \pi rs$
- 11 Luas permukaan sfera  $= 4\pi j^2$   
*Surface area of sphere*  $= 4\pi r^2$
- 12 Isi padu prisma = luas keratan rentas  $\times$  tinggi  
*Volume of prism*  $= \text{cross sectional area} \times \text{height}$
- 13 Isi padu silinder  $= \pi j^2 t$   
*Volume of cylinder*  $= \pi r^2 h$



14 Isi padu kon =  $\frac{1}{3}\pi j^2 t$

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

15 Isi padu sfera =  $\frac{4}{3}\pi j^3$

*Volume of sphere* =  $\frac{4}{3}\pi r^3$

16 Isi padu piramid =  $\frac{1}{3} \times \text{luas tapak} \times \text{tinggi}$

*Volume of pyramid* =  $\frac{1}{3} \times \text{base area} \times \text{height}$

17 Faktor skala,  $k = \frac{PA'}{PA}$

*Scale factor*,  $k = \frac{PA'}{PA}$

18 Luas imej =  $k^2 \times \text{luas objek}$

*Area of image* =  $k^2 \times \text{area of object}$

### STATISTIK DAN KEBARANGKALIAN STATISTICS AND PROBABILITY

1 Min / Mean,  $\bar{x} = \frac{\sum x}{N}$

2 Min / Mean,  $\bar{x} = \frac{\sum fx}{\sum f}$

3 Varians / Variance,  $\sigma^2 = \frac{\sum x^2}{N} - \bar{x}^2 = \frac{\sum (x - \bar{x})^2}{N}$

4 Varians / Variance,  $\sigma^2 = \frac{\sum fx^2}{\sum f} - \bar{x}^2 = \frac{\sum f(x - \bar{x})^2}{\sum f}$

5 Sisihan piawai / Standard deviation,  $\sigma = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2} = \sqrt{\frac{\sum (x - \bar{x})^2}{N}}$

6 Sisihan piawai / Standard deviation,  $\sigma = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2} = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}}$

7  $P(A) = \frac{n(A)}{n(S)}$

8  $P(A') = 1 - P(A)$



**Bahagian A**

[40 markah]

Jawab **semua** soalan.**1**

Gambarajah Venn di ruangan jawapan menunjukkan set  $P$ ,  $Q$  dan  $R$ . Diberi set semesta  $\xi = P \cup Q \cup R$ . Pada rajah di ruang jawapan, lorekkan set

*The Venn diagram in the answer space shows sets  $P$ ,  $Q$  and  $R$ . Given that universal set  $\xi = P \cup Q \cup R$ . On the diagram in the answer space, shade the set of*

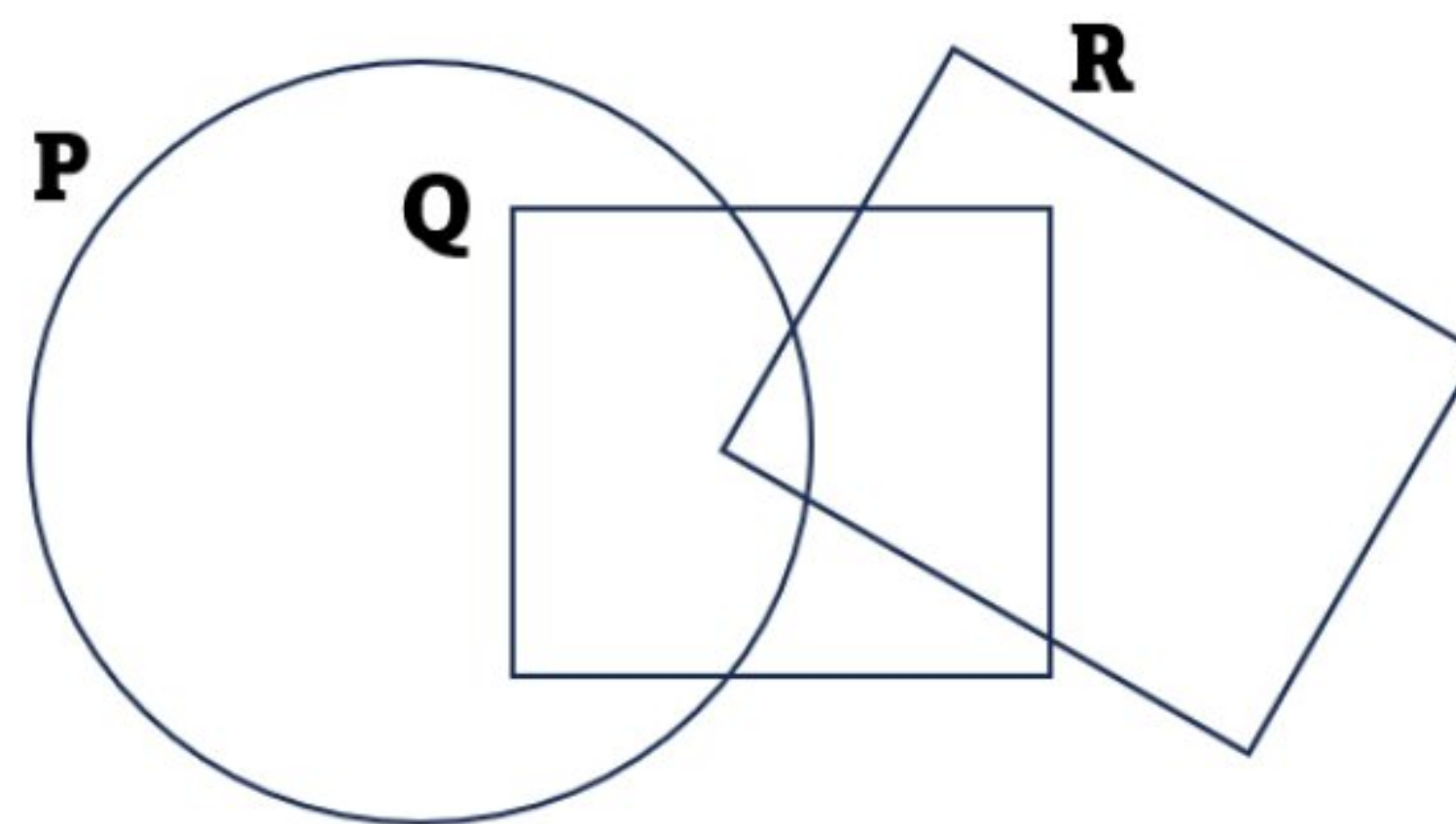
(a)  $Q \cap R'$

(b)  $P \cap (Q \cap R)'$

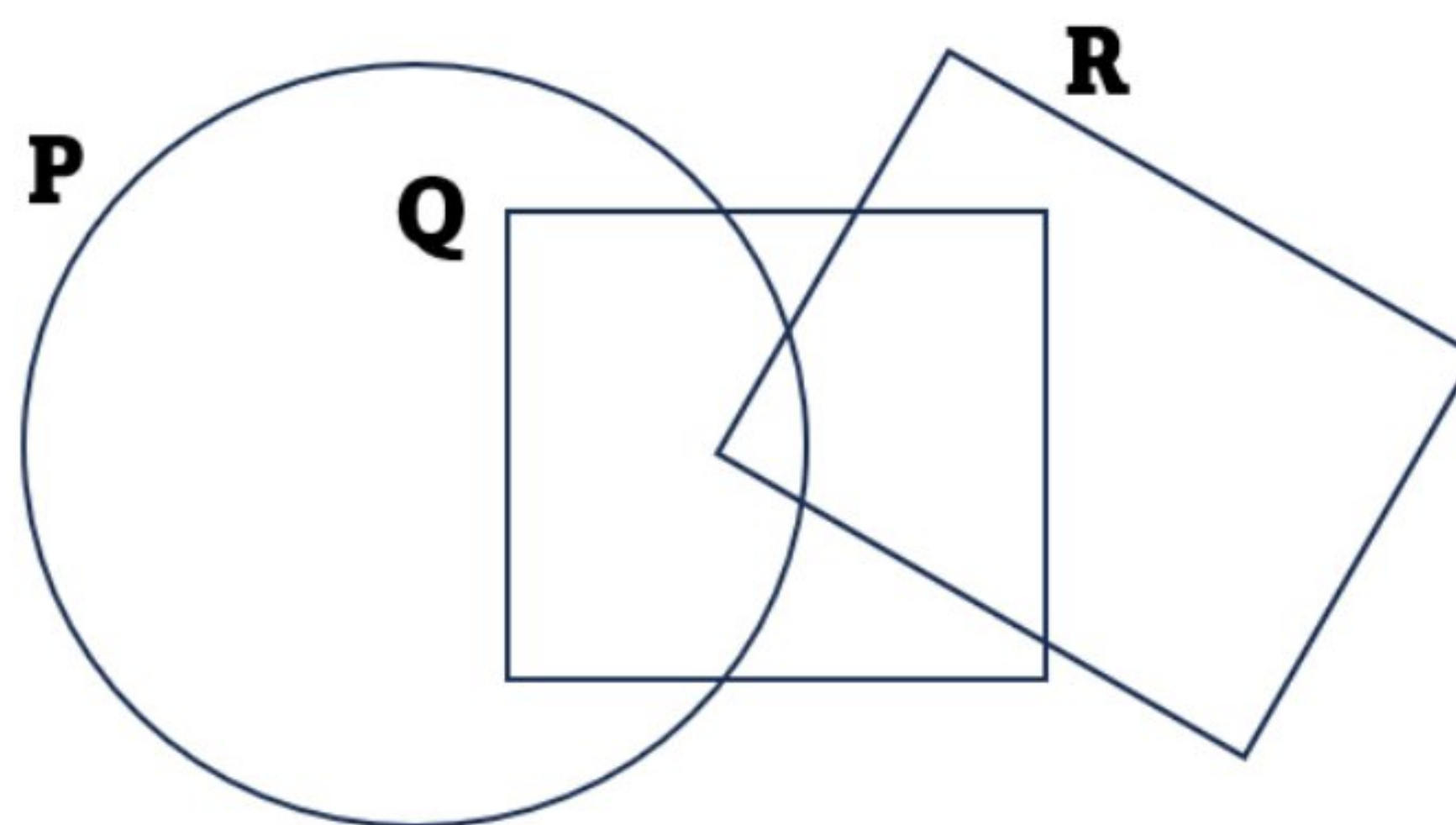
[3 markah/marks]

Jawapan/Answer :

(a)



(b)



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2. Encik Haslin, seorang penganalisis data mendapati bilangan pengunjung sebuah laman web pendidikan,  $V$  berubah secara langsung dengan kuasa tiga bilangan status,  $S$  yang dimuat naik. Apabila 8 status dimuat naik, didapati bilangan pengunjung bertambah daripada 1500 kepada 3200 orang. Cari bilangan pengunjung apabila 30 status dimuatnaik.

*Encik Haslin, a data analyst found that the number of visitors to an education website,  $V$  changes directly with the third power of the number of status,  $S$  that are uploaded. When 8 status uploaded, it was found that the number of visitors increased from 1500 to 3200 people. Find the number of visitors when 30 status are uploaded.*

[3 markah/marks]

Jawapan/Answer :

- 3 (a) Nyatakan sama ada hujah di bawah ialah hujah deduktif atau hujah induktif.  
*State whether the argument below is a deductive argument or an inductive argument.*

Sudut penggenap bagi  $30^\circ$  ialah  $150^\circ$ . Sudut penggenap bagi  $55^\circ$  ialah  $125^\circ$ .

Maka sudut penggenap bagi  $\theta$  ialah  $180^\circ - \theta$ .

*The complement angle of  $30^\circ$  is  $150^\circ$ . The complementary angle of  $55^\circ$  is  $125^\circ$ .*

*Then, the complement angle for  $\theta$  is  $180^\circ - \theta$ .*

[1 markah/mark]

- (b) Tulis dua implikasi bagi pernyataan berikut.  
*Write two implications of the following statement.*

$$\cos 90^\circ = 0 \text{ jika dan hanya jika } \theta = 90^\circ$$

$$\cos 90^\circ = 0 \text{ if and only if } \theta = 90^\circ$$

[2 markah/marks]

Jawapan/Answer :

- (a) .....  
(b) Implikasi 1: .....



Implikasi 2: .....

4. Puan Samutha mempunyai polisi insurans perubatan utama dengan peruntukan deduktibel sebanyak RM300 dan fasal penyertaan peratusan ko-insurans 75/25 dalam polisinya. Hitung bayaran kos yang ditanggung oleh syarikat insurans dan Puan Samutha sendiri jika kos perubatan yang dilindungi polisinya berjumlah RM21 000.
- Puan Samutha has a major medical insurance policy with a deductible provision of RM300 and a 75/25 co-insurance percentage participation clause in her policy. Calculate the cost borne by the insurance company and Puan Samutha herself if the medical cost covered by her policy is RM21 000.*

[4 markah/marks]

Jawapan/Answer :

5. (a) Jika hasil tambah  $2x$ ,  $3x$  dan  $x$  ialah 180, cari nilai  $x$   
*If the sum of  $2x$ ,  $3x$  and  $x$  is 180, find the value of  $x$ .*
- (b) Umur Yani ialah 40 tahun. Umur Tanuja ialah separuh daripada umur Yani manakala umur Ray ialah  $x$  umur lebih tua daripada Tanuja. Jumlah umur mereka ialah 95 tahun. Cari umur Ray.  
*Yani is 40 years old. Tanuja is half of Yani's age. Ray is  $x$  years older than Tanuja. Their total age is 95 years old. How old is Ray* [5 markah/marks]

Jawapan/Answer :

(a)

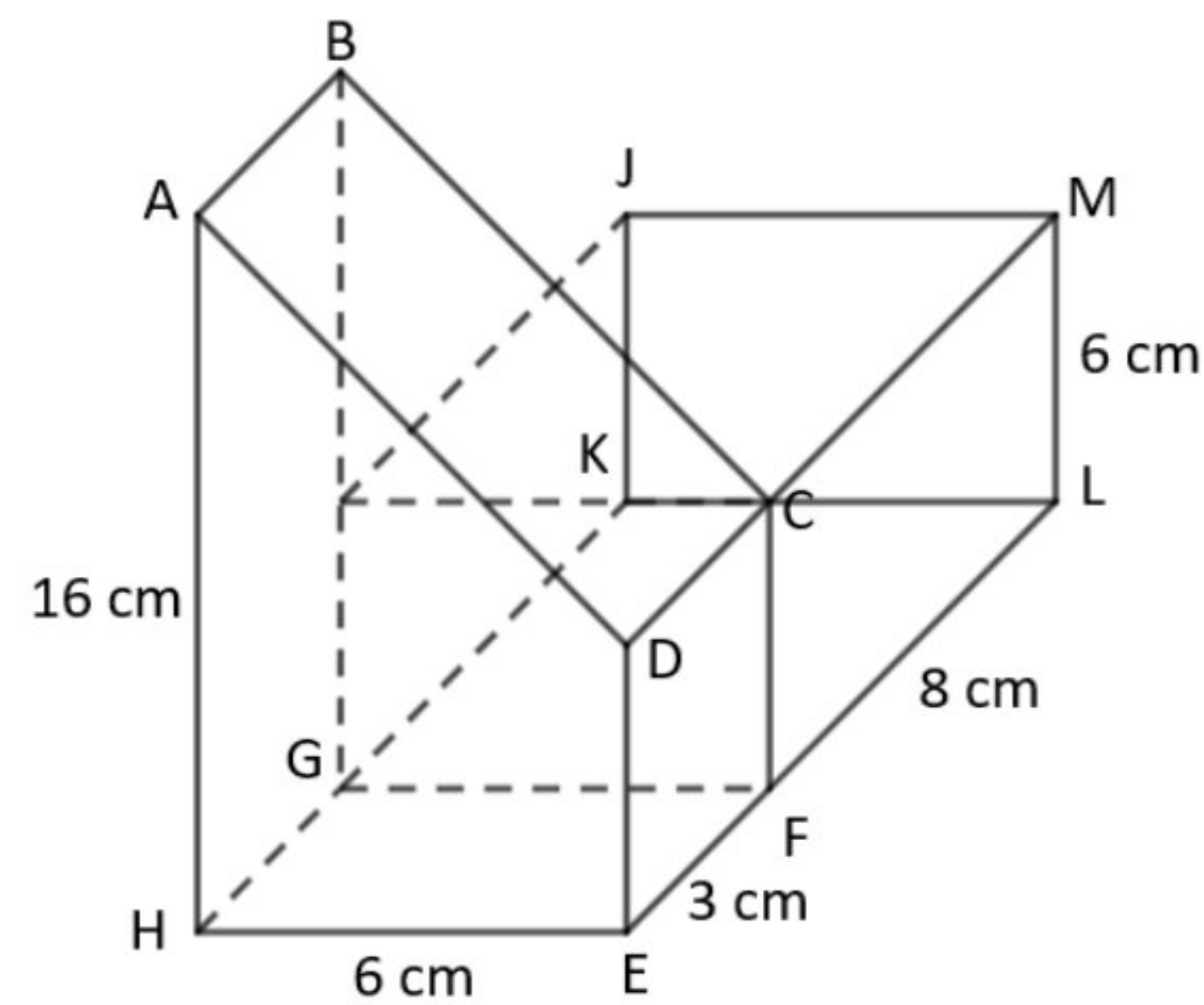
(b)



- 6 Rajah 6 menunjukkan satu gabungan pepejal yang terbentuk daripada cantuman satu prisma tegak dan satu kuboid.  $ADEH$  ialah keratan rentas seragam prisma itu. Hitung isipadu dalam  $\text{cm}^3$ , gabungan pepejal itu.

*Diagram 6 shows a solid combination formed from the fusion of a right prism and a cuboid.  $ADEH$  is the uniform cross section of the prism. Calculate the volume in  $\text{cm}^3$ , of the combined solid.*

[4 markah/marks]



Rajah/Diagram 6

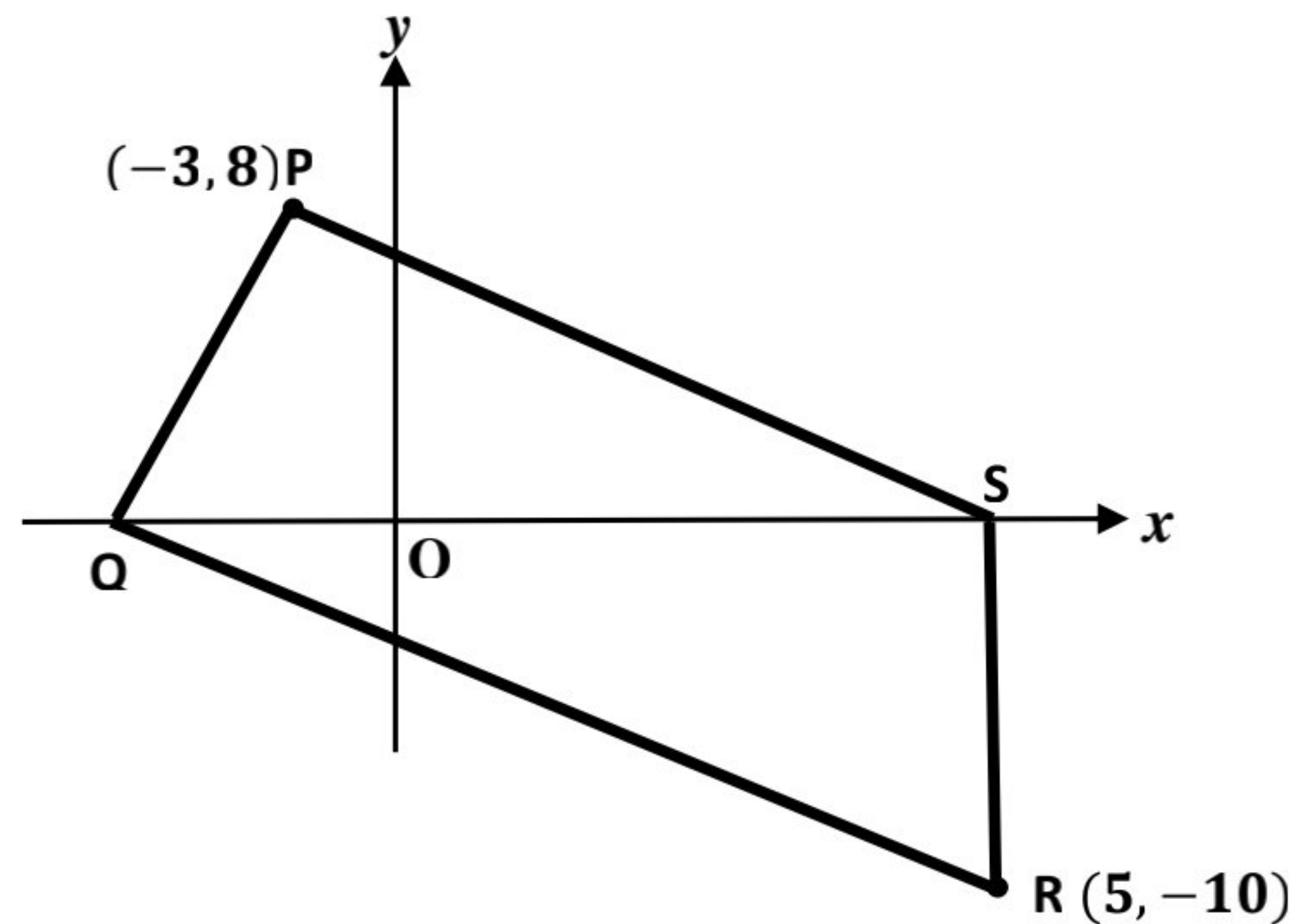
Jawapan/Answer :



- 7 Rajah 7 menunjukkan  $O$  ialah asalan dan  $PQRS$  ialah satu trapezium dengan  $PS$  dan  $QR$  adalah selari. Garis lurus  $RS$  selari dengan paksi- $y$ , dan titik  $Q$  dan  $S$  berada pada paksi- $x$ . Tentukan,

*Diagram 7,  $O$  is the origin and  $PQRS$  is a trapezium with  $PS$  and  $QR$  are parallel. The straight line  $RS$  is parallel to the  $y$ -axis, and the points  $Q$  and  $S$  are on the  $x$ -axis.*

*Determine,*



Rajah/Diagram 7

- (a) koordinat  $S$  /  $S$  coordinates
- (b) persamaan garis lurus  $QR$   
*the equation of the straight line  $QR$*

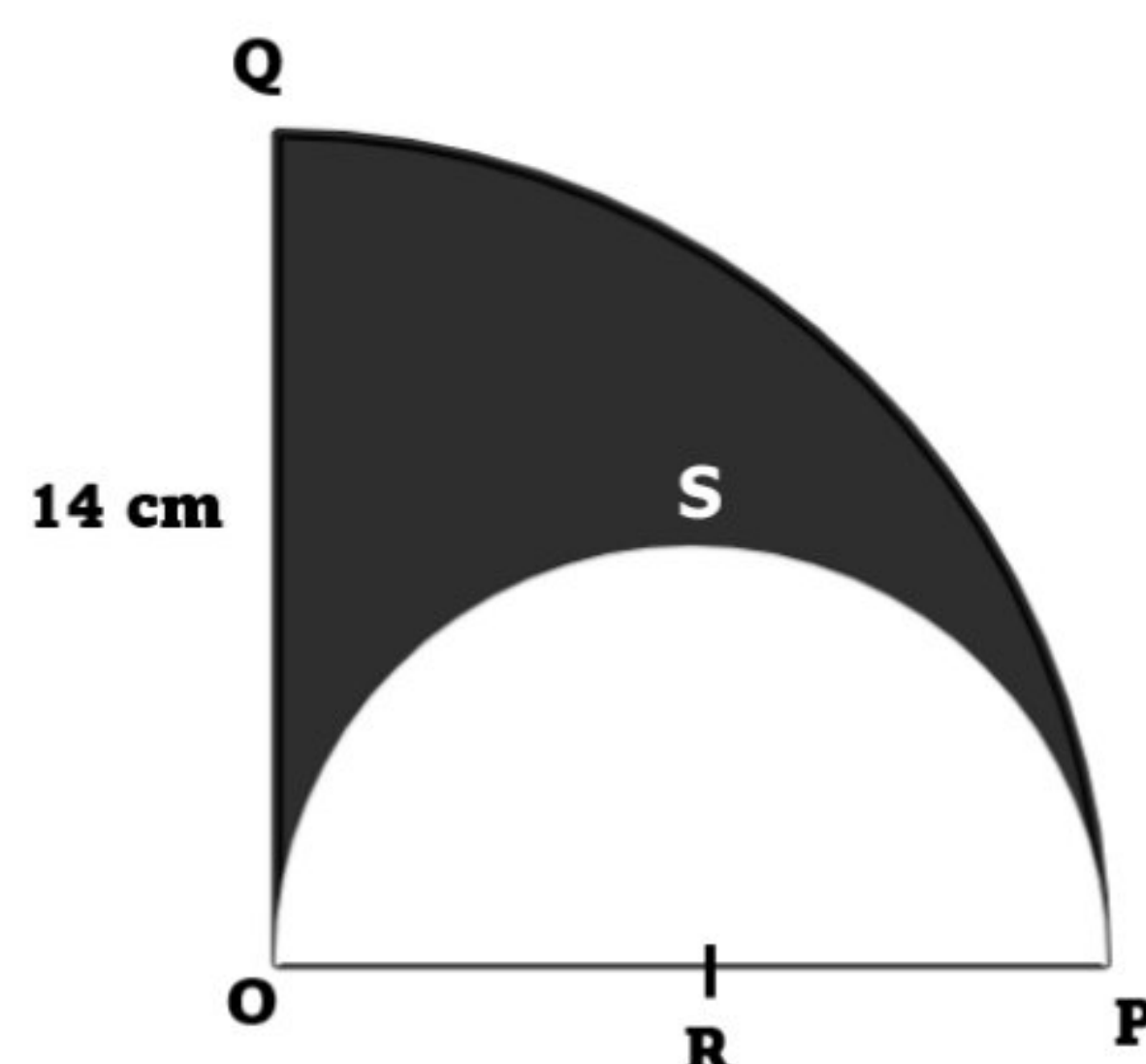
[4 markah/marks]

Jawapan/Answer :

- (a)
- (b)



- 8 Rajah 8,  $OPQ$  ialah sukuan bulatan berpusat  $O$  dan  $OPS$  ialah semibulatan berpusat  $R$ .  
*Diagram 8,  $OPQ$  is a quadrant of a circle with center  $O$  and  $OPS$  is a semicircle with center  $R$ .*



Rajah/Diagram 8

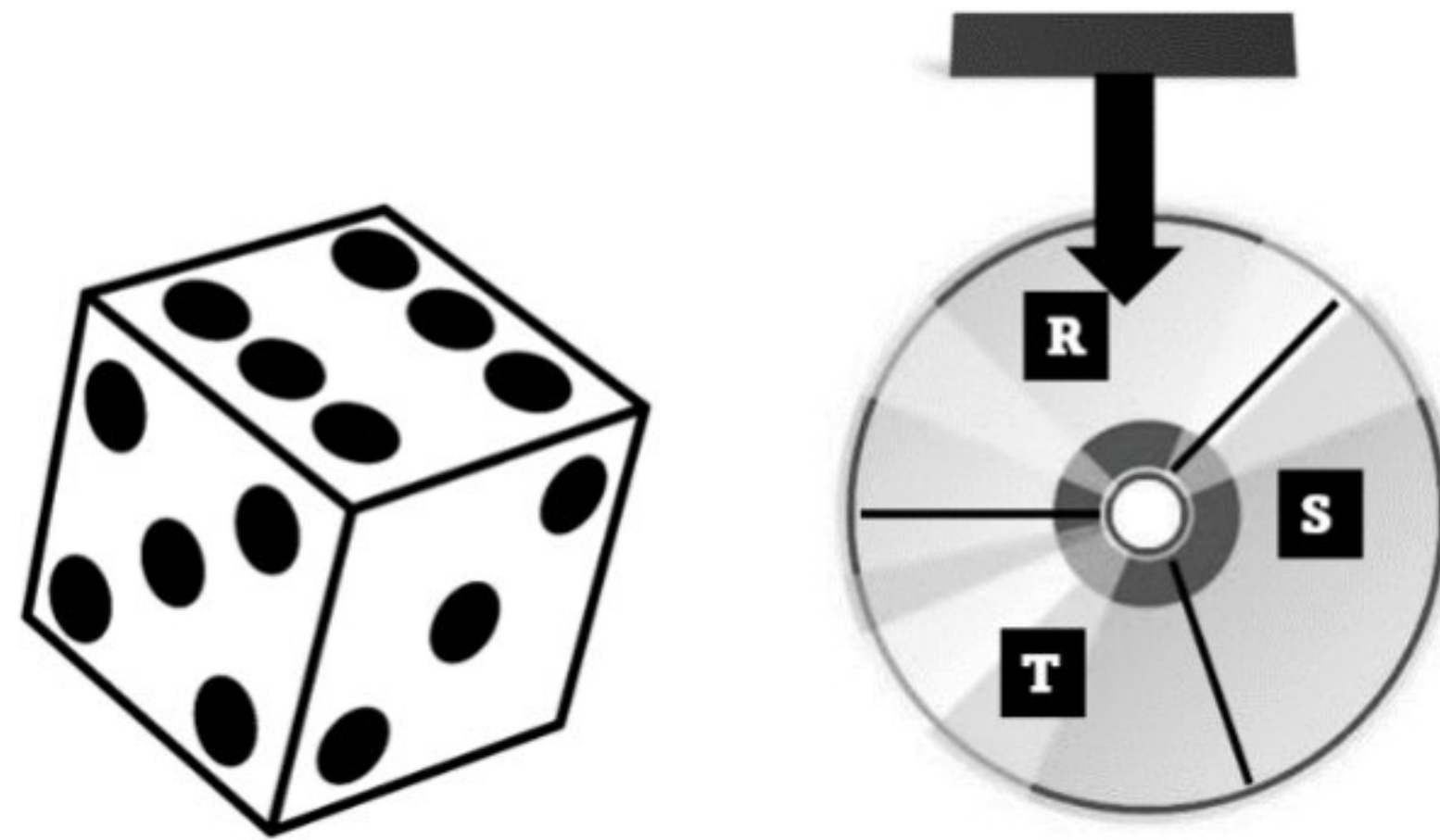
Menggunakan / Using  $\pi = \frac{22}{7}$ , hitung / calculate  
perimeter, dalam cm, kawasan yang berlorek.  
*perimeter, in cm, of the shaded area.*

[3 markah/marks]

Jawapan/Answer :



- 9 Rajah 9 menunjukkan sebuah dadu adil dan satu cakera dengan tiga sektor yang sama besar dan satu penunjuk tetap. Setiap sektor masing-masing dilabel dengan huruf *R*, *S* dan *T*.  
*Diagram 9 shows a fair dice and a disk with equal three sectors and a fixed pointer. Each sector is labelled with the letters R, S and T.*



Rajah/Diagram 9

Aliah membaling dadu itu sekali dan kemudian memutarakan cakera itu sekali.  
*Aliah rolled the dice once and then she spinned the disc once.*

- (a) Senaraikan ruang sampel.  
*List the sample space.*
- (b) Dengan menyenaraikan kesudahan yang mungkin bagi peristiwa itu, cari kebarangkalian bahawa  
*By listing down the possible outcomes of the event, find the probability that*
- (i) penunjuk itu menunjukkan sektor *S*  
*the pointer points to the S sector*
- (ii) dadu menunjukkan nombor genap atau penunjuk menunjukkan sektor *R*.  
*the dice indicate an even number or the pointer indicates the R sector.*

[6 markah/marks]

Jawapan/Answer :

(a)

(b) (i)

(ii)



- 10** Syarikat Komunikasi Star menghasilkan dua model kamera, *J* dan *B*. Setiap kamera yang dihasilkan perlu melalui dua bahagian, iaitu Bahagian Pemasangan dan Bahagian Pembungkusan. Jadual di bawah menunjukkan masa pemasangan dan pembungkusan bagi setiap jenis kamera. Diberi bahawa Bahagian Pemasangan beroperasi selama 12 jam sehari dan Bahagian Pembungkusan pula beroperasi selama 9 jam sehari. Hitung bilangan kamera *J* dan kamera *B* yang boleh dihasilkan dalam sehari.

*Syarikat Komunikasi Star produces two camera models, J and B. Each camera produced has to go through two parts, namely the Installation Division and the Packaging Division. The table below shows the installation and packaging time for each type of camera. It is given that the Installation Division operates for 12 hours a day and the Packaging Division operates for 9 hours a day. Count the number of J cameras and B cameras that are produced in a day.*

| Bahagian<br>Divisions     | Kamera J<br>Camera J | Kamera B<br>Camera B |
|---------------------------|----------------------|----------------------|
| Pemasangan / Installation | 10 minit / minutes   | 10 minit / minutes   |
| Pembungkusan / Packaging  | 5 minit / minutes    | 9 minit / minutes    |

Jadual/Table 10

[5 markah/marks]

Jawapan/Answer :



**Bahagian B**

[45 markah]

*Jawab semua soalan.*

- 11** Dalam sebuah konsert kumpulan nasyid terkenal, terdapat dua jenis tiket yang dijual kepada para penonton iaitu tiket  $x$  bagi kerusi di tingkat atas dan tiket  $y$  bagi kerusi di tingkat bawah. Jumlah maksimum bagi tiket  $x$  dan tiket  $y$  yang disediakan masing-masing ialah sebanyak 800 dan 900 keping tiket. Jumlah tiket yang berjaya dijual adalah lebih daripada atau sama dengan 1000 keping tiket.

*In a concert of a famous nasyid group, there were two types of tickets sold to the audience which were  $x$ -tickets for the upstairs seats and the  $y$ -ticket for the seats on the ground floor. The maximum number of  $x$ -tickets and  $y$ -tickets available is 800 and 900 tickets respectively. The number of tickets successfully sold is more than or equal to 1 000 pieces of tickets.*

- (a) Tulis tiga ketaksamaan linear, selain daripada  $x \geq 0$  dan  $y \geq 0$ , yang mewakili situasi itu.

*Write three linear inequalities, other than  $x \geq 0$  and  $y \geq 0$ , which represent the situation.*

[3 markah/marks]

- (b) Lukis dan lorek rantau sepunya yang memuaskan ketaksamaan linear yang dibina. *Draw and shade a common region that satisfies the linear inequalities built.*

[3 markah/marks]

- (c) Diberi bahawa harga tiket  $x$  dan  $y$  masing-masing ialah RM30 dan RM50. Daripada graf anda di (b), hitung beza dalam RM, jumlah kutipan maksimum dan minimum konsert itu.

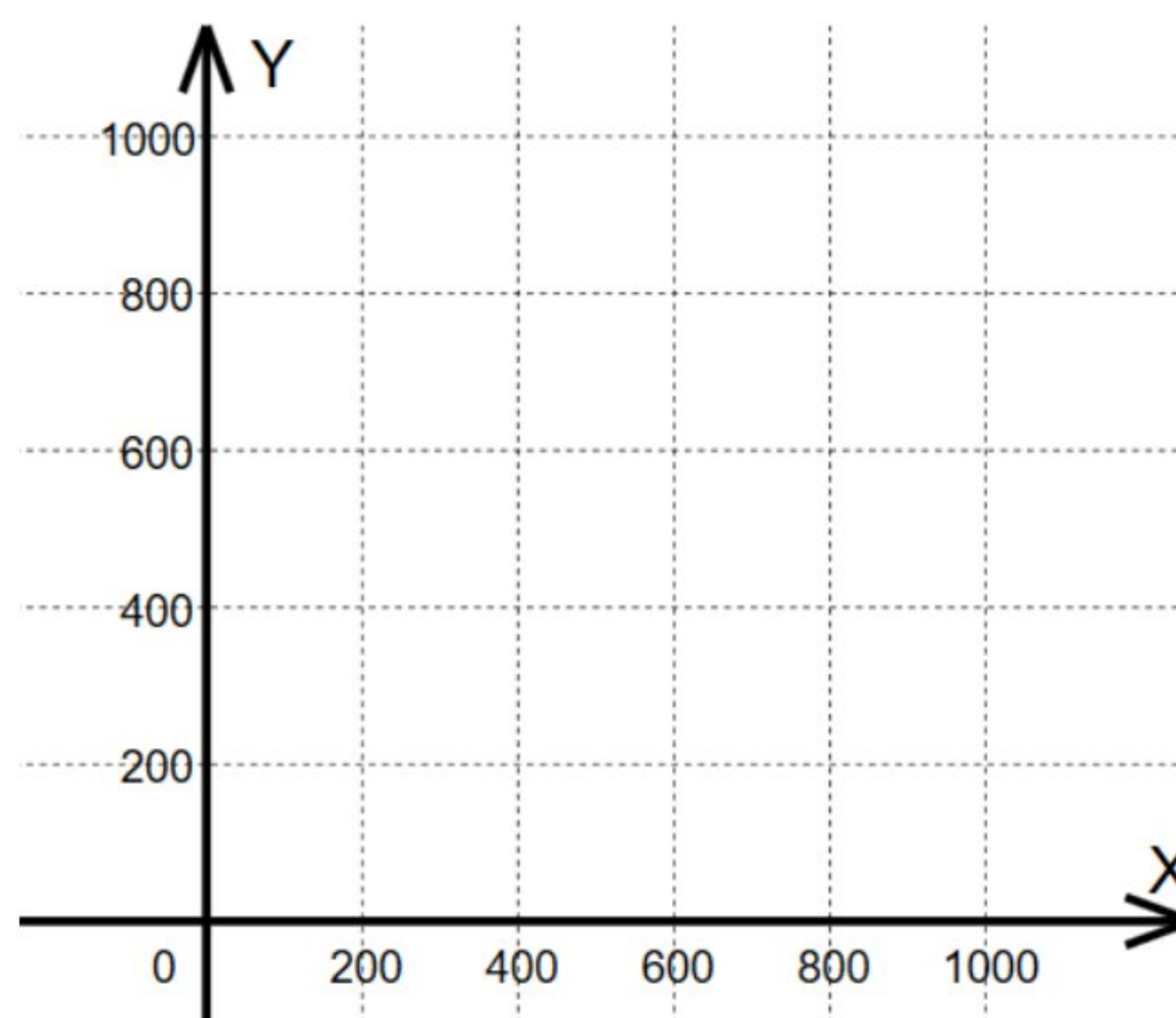
*It is given that the  $x$  and  $y$  ticket prices are RM30 and RM50 respectively. From your graph in (b), calculate the difference in RM, the maximum and minimum collection amount of the concert.*

[3 markah/marks]

Jawapan/Answer :

- (a)

- (b)



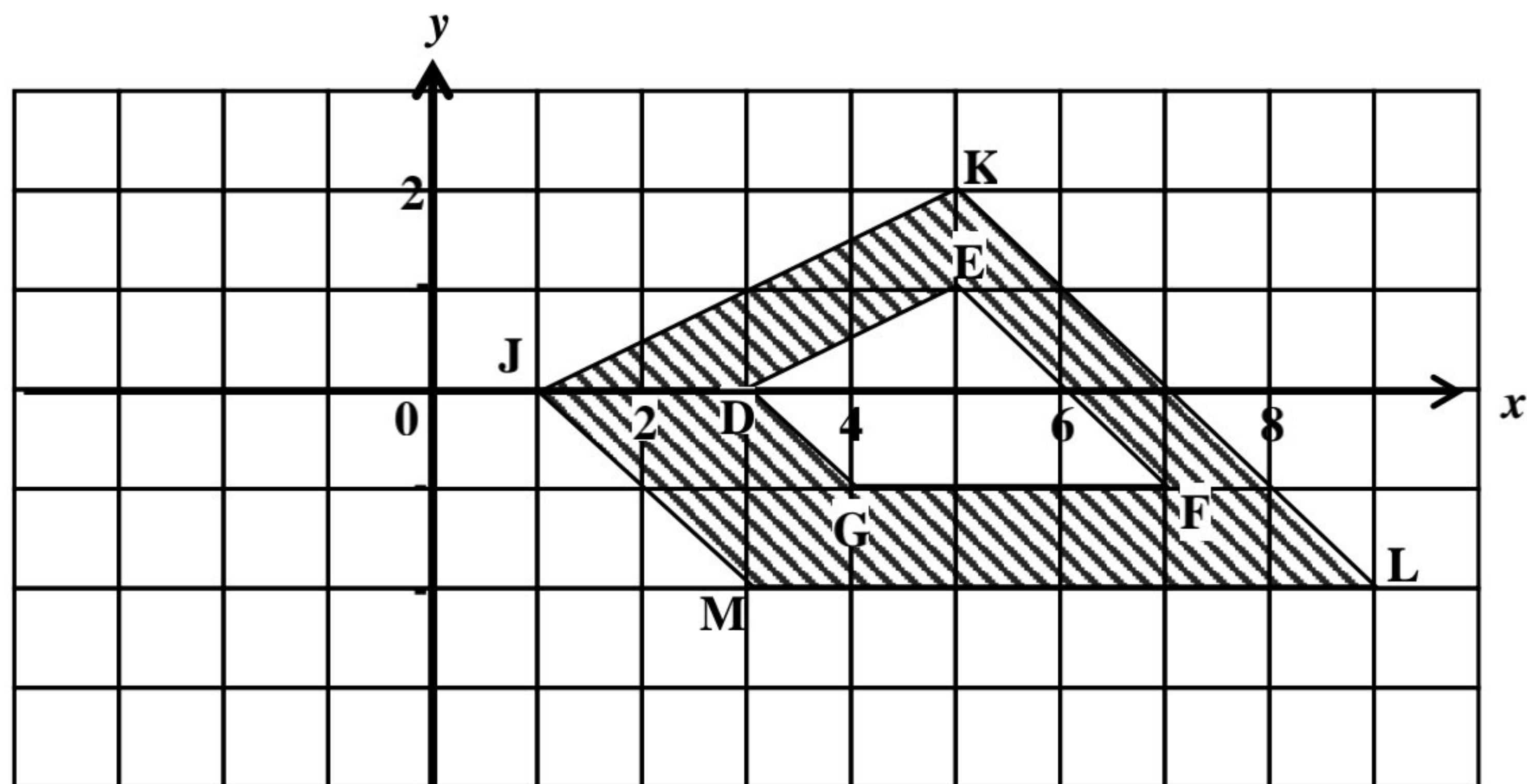
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(c)

12



Rajah/Diagram 12

- (a) Rajah 12 menunjukkan dua buah sisi empat,  $DEFG$  dan  $JKLM$  dilukis pada satah Cartesian.

*Diagram 12 shows two quadrilaterals  $DEFG$  and  $JKLM$  drawn on Cartesian axes.*

- (i) Nyatakan koordinat imej bagi titik K di bawah suatu translasi  $\begin{pmatrix} -7 \\ -4 \end{pmatrix}$ .

*State the coordinate of image of point K under translation  $\begin{pmatrix} -7 \\ -4 \end{pmatrix}$ .*

- (ii) Nyatakan koordinat imej bagi titik J di bawah putaran  $90^\circ$  lawan arah jam berpusat di  $(0, -1)$ .

*State the coordinate of image of point J under  $90^\circ$  anticlockwise rotation at centre  $(0, -1)$ .*

[2 markah/marks]

- (b)  $PQRS$  ialah imej bagi  $DEFG$  di bawah suatu putaran  $180^\circ$  pada titik  $(2, -1)$ . Pada rajah di atas, lukis imej dan labelkan dengan huruf X bagi transformasi tersebut.  
 *$PQRS$  is the image of  $DEFG$  under a  $180^\circ$  rotation at  $(2, -1)$ . On the diagram above, draw the image and label it with alphabet X for the transformation.*

[2 markah/marks]

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- (c) (i)  $JKLM$  ialah imej bagi  $DEFG$  di bawah transformasi  $U$ . Huraikan transformasi  $U$ .  
 *$JKLM$  is the image of  $DEFG$  under transformation  $U$ . Describe, in full, the transformation  $U$ .* [3 markah/marks]
- (ii) Diberi luas bagi  $DEFG$  ialah  $27 \text{ cm}^2$ , hitung luas, dalam  $\text{cm}^2$ , kawasan berlorek.  
*Given that the area of  $DEFG$  is  $27 \text{ cm}^2$ , calculate the area of the shaded region, in  $\text{cm}^2$ .* [3 markah/marks]

Jawapan/Answer :

- (a) (i)
- (ii)
- (b) Pada rajah / *On the diagram*
- (c) (i)  $U = \dots\dots\dots$
- (ii)



- 13 (a) Nyatakan dua jenis rebat cukai yang dibenarkan oleh kerajaan [2 markah/marks]
- (b) Pada tahun 2021, Puan Rahmah dan suami mendapat gaji tahunan sebanyak RM75 500 dan RM81 500 masing-masing. Jadual 13 menunjukkan belanja yang dituntut oleh Puan Rahmah dan suaminya bagi tahun tersebut bagi pelepasan cukai. *In year 2021, Puan Rahmah and her husband earned an annual salary of RM75 500 and RM81 500 each. Table 13 shows the expenses claimed by Puan Rahmah and her husband for that year for the tax reliefs.*

| Perkara / Item                                                                             | Puan Rahmah | Suami Husband |
|--------------------------------------------------------------------------------------------|-------------|---------------|
| Individu / Individual                                                                      | RM9 000     | RM9 000       |
| Insuran hayat dan KWSP (had RM7 000)<br><i>Life insurance and EPF (limited to RM7 000)</i> | RM6 000     | RM7 900       |
| Gaya hidup (had RM2 500)<br><i>Lifestyle (limited to RM2 500)</i>                          | RM 2 300    | RM2 500       |
| Tabung bersih SSPN (had RM8 000)<br><i>Net deposit in SSPN (limited to RM8 000)</i>        | RM3 000     | RM2 000       |
| Insurans pendidikan (had RM3 000)<br><i>Education insurance (limited to RM3 000)</i>       | RM2 600     | RM3 000       |

Jadual/Table 13

Pada tahun tersebut, Puan Rahmah dan suaminya telah menderma sebanyak RM1000 setiap seorang kepada Pusat Kanser Negara, sebuah badan kebajikan yang diluluskan bagi pengecualian cukai. Hitung jumlah pendapatan bercukai bagi Puan Rahmah dan suaminya bagi tahun 2021.

*During the year, Puan Rahmah and her husband donated RM1000 each to a charity approved for tax exemption. Calculate the total chargeable income for Puan Rahmah and her husband for the year 2021.* [4 markah/marks]

- (c) Encik Raju memiliki sebuah pangsapuri servis di Melaka. Sewa pangsapuri itu dianggarkan pada RM1 500 sebulan dan dia membayar RM850 setahun untuk cukai pintu. Hitung kadar cukai pintu bagi pangsapuri servis itu. *Encik Raju owns a service apartment in Melaka. Monthly rent for the unit estimated RM1 500 monthly and he pays RM850 yearly for the property assessment tax. Calculate the rate of property assessment tax for the apartment.*

[3 markah/marks]



Jawapan/*Answer* :

(a)

(b)

(c)



- 14 (a) Jadual 14 menunjukkan taburan kekerapan markah bagi 50 orang murid.  
*Table 14 shows the frequency distribution of marks of 50 students.*

| Markah<br><i>Marks</i> | Bilangan murid<br><i>Number of students</i> |
|------------------------|---------------------------------------------|
| 40-44                  | 5                                           |
| 45-49                  | 7                                           |
| 50-54                  | $m$                                         |
| 55-59                  | 15                                          |
| 60-64                  | $n$                                         |
| 65-69                  | 3                                           |

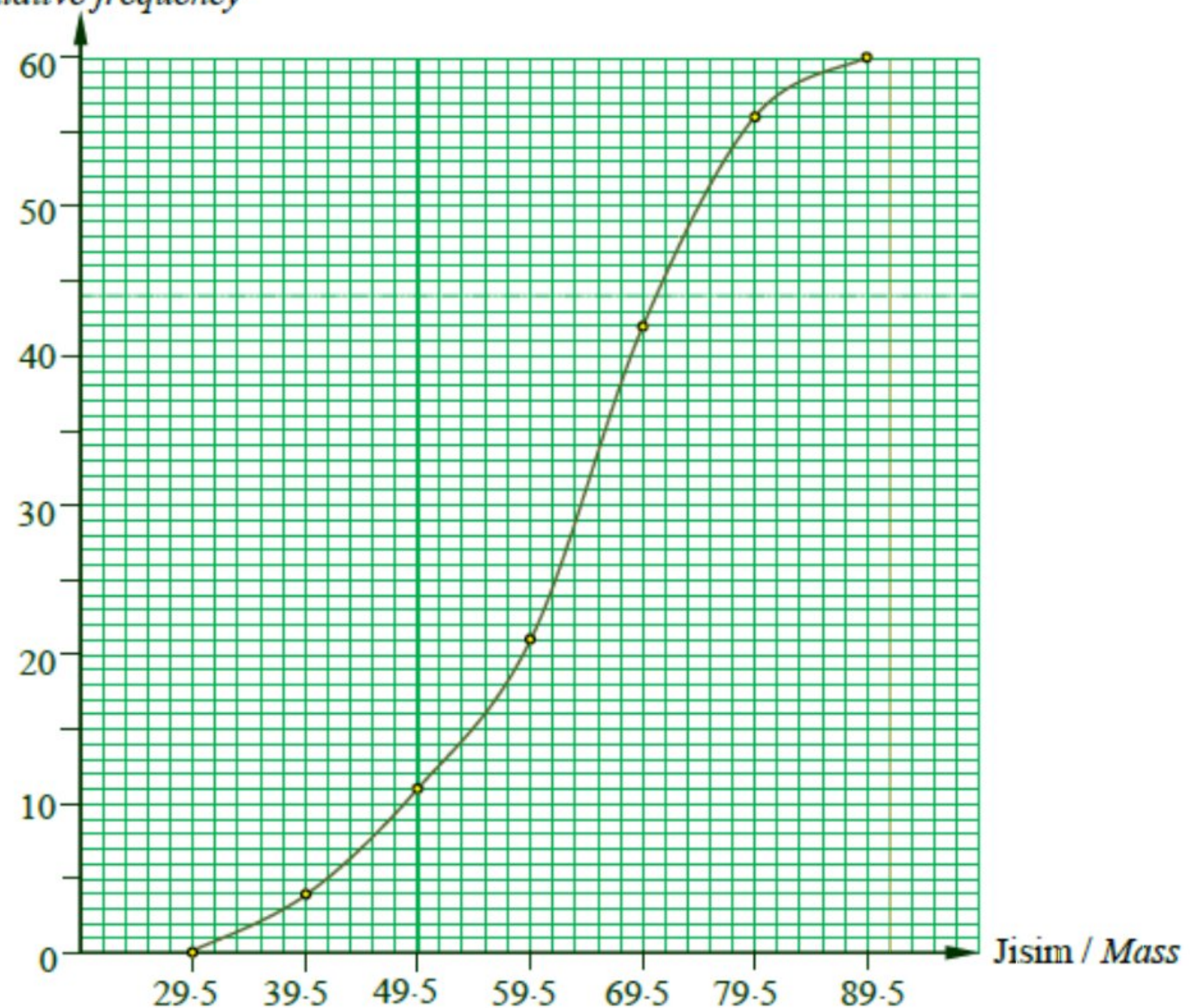
Jadual/Table 14

- (i) Diberi  $m : n$  ialah  $2 : 3$ , cari nilai  $m$  dan nilai  $n$ .  
*Given  $m : n$  is  $2 : 3$ , find the value of  $m$  and of  $n$ .*

- (ii) Seterusnya, hitung min dan sisihan piawai itu.  
*Hence, calculate the mean and the standard deviation.* [7 markah/marks]

- (b) Pada suatu minggu tertentu, Cikgu Hasmi merekodkan jisim, dalam kg, bagi 60 orang murid di sekolahnya. Rajah 14 menunjukkan sebuah ogif yang diplot berdasarkan data yang direkodkan.  
*In a particular week, Teacher Hasmi has recorded the mass, in kg, of 60 students in his school. Diagram 14 shows an ogive that has been plotted based on the data recorded.*

Kekerapan longgokan  
*Cumulative frequency*



Rajah/Diagram 14



Berdasarkan ogif tersebut, cari julat antara kuartil.  
*Base on the ogive given, find the interquartile range.*

[2 markah/marks]

Jawapan/Answer :

(a) (i)

(ii)

(b)



- 15 (a) Lengkapkan Jadual 15 di ruang jawapan bagi persamaan  $y = x^3 - 5x - 12$  dengan menulis nilai-nilai  $y$  apabila  $x = -3$  dan  $x = 2$ .  
*Complete Table 15 in the answer space for the equation  $y = x^3 - 5x - 12$  by writing down the values of  $y$  when  $x = -3$  and  $x = 2$ .* [2 markah/marks]
- (b) Untuk ceraian soalan ini, gunakan kertas graf yang disediakan. Anda boleh menggunakan pembaris fleksibel. Menggunakan skala 2 cm kepada 1 unit pada paksi- $x$  dan 2 cm kepada 5 unit pada paksi- $y$ , lukis graf  $y = x^3 - 5x - 12$  bagi  $-3 \leq x \leq 3.6$ .  
*For this part of the question, use the graph paper provided. You may use a flexible curve ruler. Using a scale of 2 cm to 1 unit on the  $x$ -axis and 2 cm to 5 units on the  $y$ -axis, draw the graph of  $y = x^3 - 5x - 12$  for  $-3 \leq x \leq 3.6$ .* [4 markah/marks]
- (c) Daripada graf anda, cari / *From your graph, find*  
 (i) nilai  $x$  apabila  $y = 10$ ,  
*the value of  $x$  when  $y = 10$ ,*  
 (ii) nilai  $y$  apabila  $x = -2.5$   
*the value of  $y$  when  $x = -2.5$*  [2 markah/marks]

Jawapan/Answer :

(a)  $y = x^3 - 5x - 12$

|     |    |     |    |     |     |   |   |      |
|-----|----|-----|----|-----|-----|---|---|------|
| $x$ | -3 | -2  | -1 | 0   | 1   | 2 | 3 | 3.6  |
| $y$ |    | -10 | -8 | -12 | -16 |   | 0 | 16.7 |

Jadual/Table 15

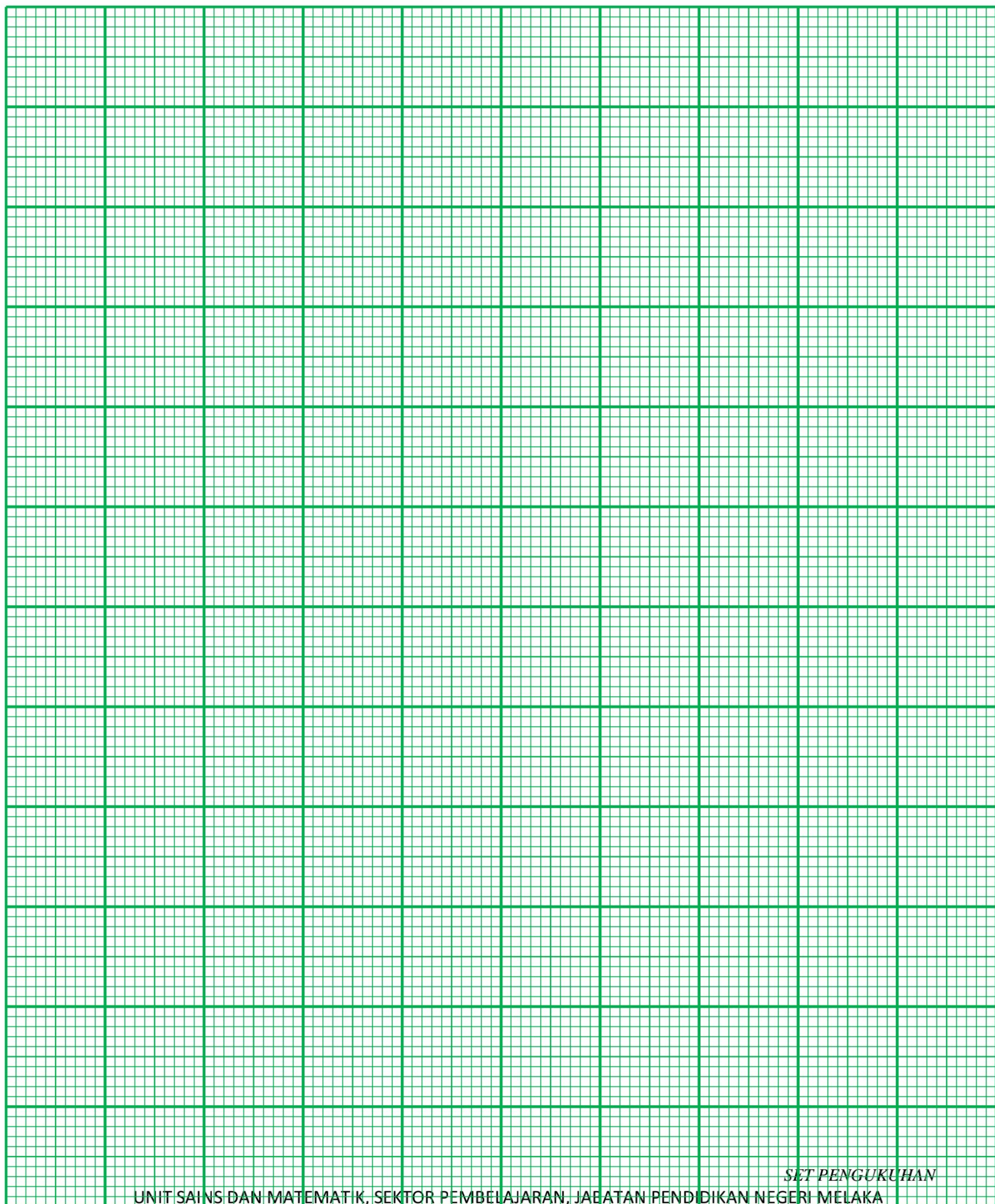
(b) Rujuk graf / *Refer graph*

(c) (i) .....

(ii).....



Kertas graf untuk soalan 15(c)





**Bahagian C**

[15 markah]

*Bahagian ini mengandungi dua soalan. Jawab satu soalan.*

- 16** (a) Rajah 16 menunjukkan peta perjalanan Encik Mohsin, Encik Chong dan Encik Selvam dari SMK Dato' Abdul Rahman Ya'kub ke SMK Paya Rumpit. *Diagram 16 shows the travel map of Encik Mohsin, Encik Chong and Encik Selvam from SMK Dato' Abdul Rahman Ya'kub to SMK Paya Rumpit.*



Rajah/Diagram 16

Mereka menggunakan aplikasi google maps untuk mendapatkan jarak dan masa memandu. Jadual 16.1 dan Jadual 16.2 di bawah menunjukkan nama tempat dan pilihan laluan yang boleh dilalui oleh mereka.

*They use the google maps application to get the distance and driving time. Table 16.1 and Table 16.2 below show the name of places and route options they can take.*

| Nama Tempat/ Name of Places   | Bucu/ Vertex (V) |
|-------------------------------|------------------|
| SMK Dato' Abdul Rahman Ya'kub | RY               |
| Ujong Pasir                   | U                |
| Air Keroh                     | K                |
| Universiti Teknikal Melaka    | T                |
| Stadium Hang Jebat            | H                |
| SMK Paya Rumpit               | PR               |

Jadual/Table 16.1



|              | Pilihan laluan/ <i>Choice of route</i> | Masa/ <i>times</i><br>(minit/ <i>minutes</i> ) | Jarak/ <i>Distances</i><br>(km) |
|--------------|----------------------------------------|------------------------------------------------|---------------------------------|
| Encik Mohsin | ( RY → U → PR)                         | 23                                             | 35.9                            |
| Encik Chong  | ( RY → K → H → PR)                     | 25                                             | 40.7                            |
| Encik Selvam | ( RY → T → H → PR)                     | 32                                             | 47.0                            |

Jadual/*Table* 16.2

- (i) Diberi jarak per masa untuk setiap laluan adalah pada kadar kelajuan yang berbeza-beza. Siapakah yang menggunakan laluan yang paling optimum berdasarkan masa dan jarak yang paling minimum.

*Given the distance per time for each route are at different speeds. Who uses the most optimal route based on the minimum time and distance.* [1 markah/*mark*]

- (ii) Jika Encik Chong memandu dengan kelajuan 90 km/j. Nyatakan masa baru yang di ambil olehnya untuk perjalanan dari SMK Dato' Abdul Rahman Yakub ke SMK Paya Rumpit. [ Nyatakan jawapan dalam minit dan saat ]

*If Encik Chong drives at a speed of 90 km/h. State the new time taken by him to travel from SMK Dato' Abdul Rahman Ya'kub to SMK Paya Rumpit.*

[*State the answer in minutes and seconds*] [2 markah/*marks*]

Jawapan/*Answer* :

(a) (i)

(ii)



- (b) Lukiskan rangkaian graf terarah yang menunjukkan perjalanan Encik Selvam.  
*Draw a network of directed graphs showing the travel for Encik Selvam.*

[3 markah/marks]

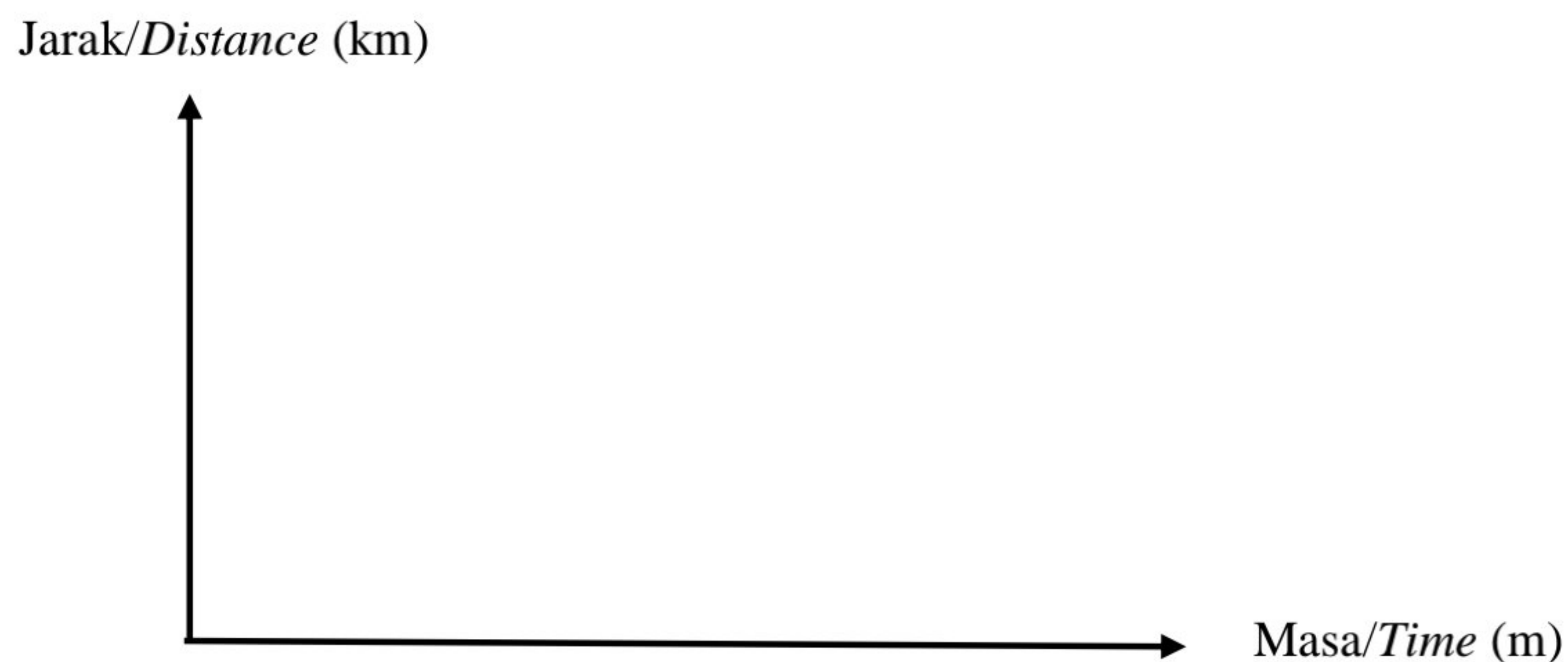
Jawapan/Answer :

- (c) Encik Mohsin bertolak dari SMK Dato' Abdul Rahman Ya'kub. Beliau berhenti di Ujong Pasir untuk mengisi minyak kemudian meneruskan perjalanannya ke SMK Paya Rumput. Lakarkan graf jarak melawan masa bagi situasi tersebut.

*Encik Mohsin left SMK Dato' Abdul Rahman Ya'kub. He stopped at Ujong Pasir to refuel and then continued his journey to SMK Paya Rumput. Sketch a distance versus time graph for the situation.*

[4 markah/marks]

Jawapan/Answer :





- (d) Encik Selvam singgah di sebuah kedai untuk membeli buku latihan Matematik dan Sains. Jumlah buku yang dibelinya ialah 5. Harga sebuah buku Matematik ialah RM4 dan sebuah buku Sains ialah RM3. Dengan menggunakan kaedah matriks, hitung bilangan buku Matematik dan Sains yang dibelinya jika dia membayar RM17 untuk harga kesemua buku itu.

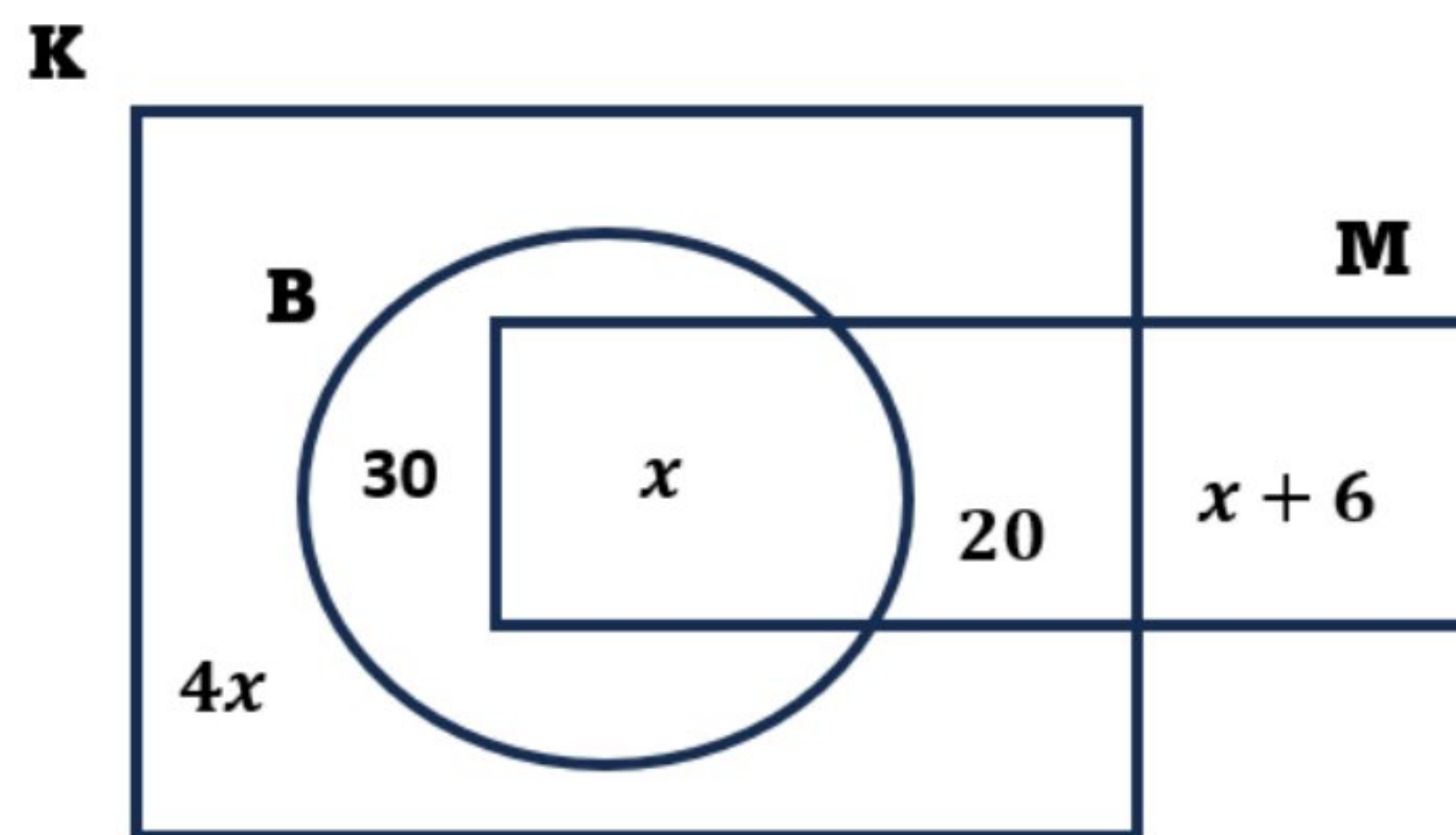
*Encik Selvam stopped by the shop to buy Mathematics and Science practice books. The total number of books he bought is 5. The price of a Mathematics book is RM4 and a Science book is RM3. By using the matrix method, calculate the number of Mathematics and Science books he buys if he pays RM17 for the price of all books.*

[5 markah/marks]

Jawapan/Answer :



- 17 (a) Suatu kajian dijalankan terhadap 200 buah keluarga di Kampung Londang bagi mengkaji tentang jenis kenderaan yang dimiliki di rumah mereka. Dapatan kajian tersebut ditunjukkan seperti dalam Rajah 17.1. Diberi bahawa set semesta  $\xi = B \cup M \cup K$ , set  $B = \{\text{keluarga memiliki basikal}\}$ , set  $M = \{\text{keluarga memiliki motosikal}\}$ , dan set  $K = \{\text{keluarga memiliki kereta}\}$ .
- A study was conducted on 200 families in Kampung Londang to study on the types of vehicles owned in their houses. The findings of the study are shown in Diagram 17.1. Given that the universal set,  $\xi = B \cup M \cup K$ , set  $B = \{\text{family owns a bicycle}\}$ , set  $M = \{\text{family owns a motorcycle}\}$ , and set  $K = \{\text{family owns a car}\}$ .*

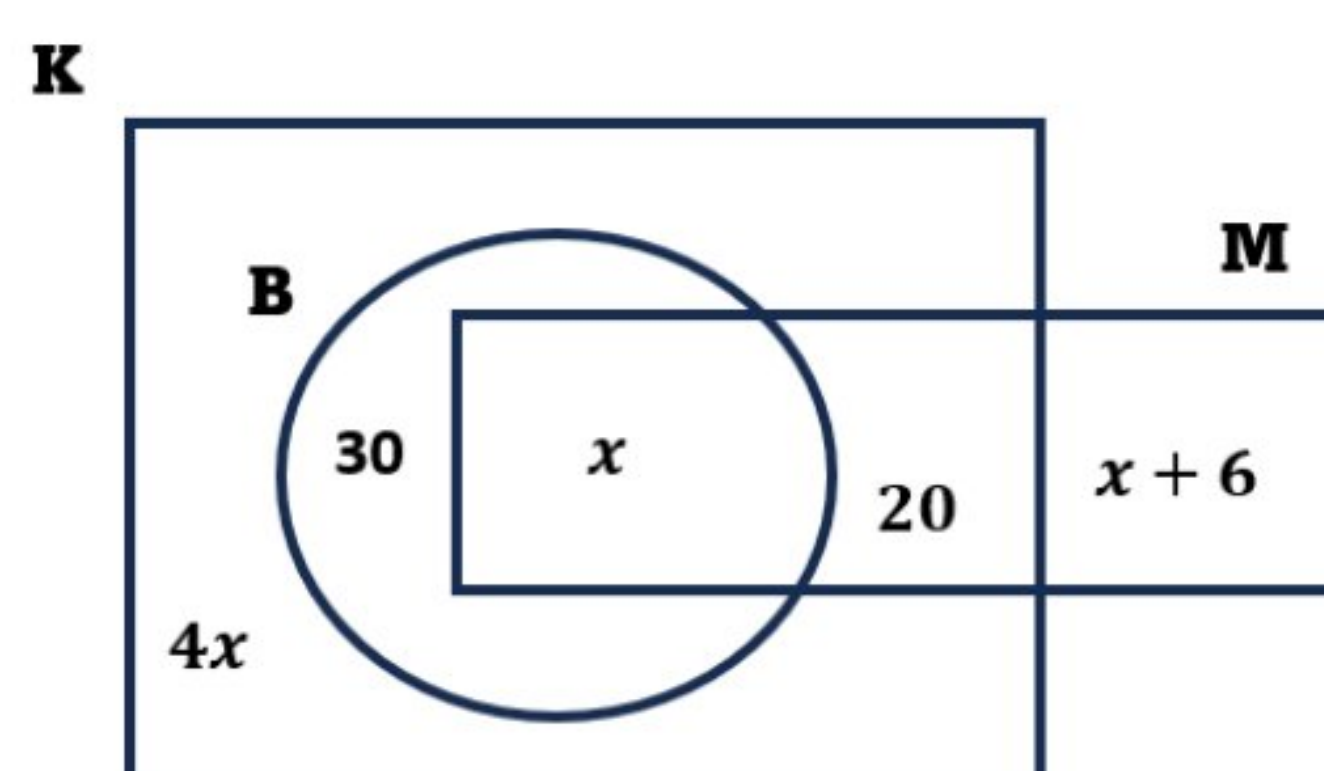


Rajah/Diagram 17.1

- (i) Diberi bahawa keluarga yang hanya memiliki motosikal akan diberi baucar untuk mengisi petrol secara percuma pada Hari Malaysia. Pada gambar rajah Venn di ruang jawapan, lorekkan kawasan yang mewakili keluarga tersebut.  
*Given that families who only own motorcycles will be given vouchers to refuel for free on the Malaysia Day. On the Venn diagram in the answer space, shade the region that represents the family.* [1 markah/mark]
- (ii) Nyatakan dalam sebutan  $x$ , bilangan keluarga yang memiliki kereta dan basikal.  
*State in terms of  $x$ , the number of families who own cars and bicycles.* [1 markah/mark]
- (iii) Hitung nilai  $x$  dan seterusnya tentukan bilangan keluarga yang tidak memiliki motosikal.  
*Calculate the value of  $x$  and then determine the number of families who do not own a motorcycle.* [3 markah/marks]

Jawapan/Answer :

(a)(i)



SET PENGUKUHAN



(ii)

(iii)

- (b) Sembilan rumah terpilih untuk mewakili Kampung Londang di dalam Pertandingan Rumah Melaka paling unik dan cantik. Terdapat 5 rumah yang bertemakan hijau dan 4 rumah bertemakan merah. Dua buah rumah dipilih secara rawak satu demi satu **tanpa pemulangan** untuk dipertandingkan. Warna rumah dicatat.

*Nine houses selected to represent Kampung Londang in the most unique and beautiful Rumah Melaka Competition. There are 5 houses with green themed and 4 houses with red themed. Two houses selected randomly from the voting without replacement. The colours of the houses are recorded.*

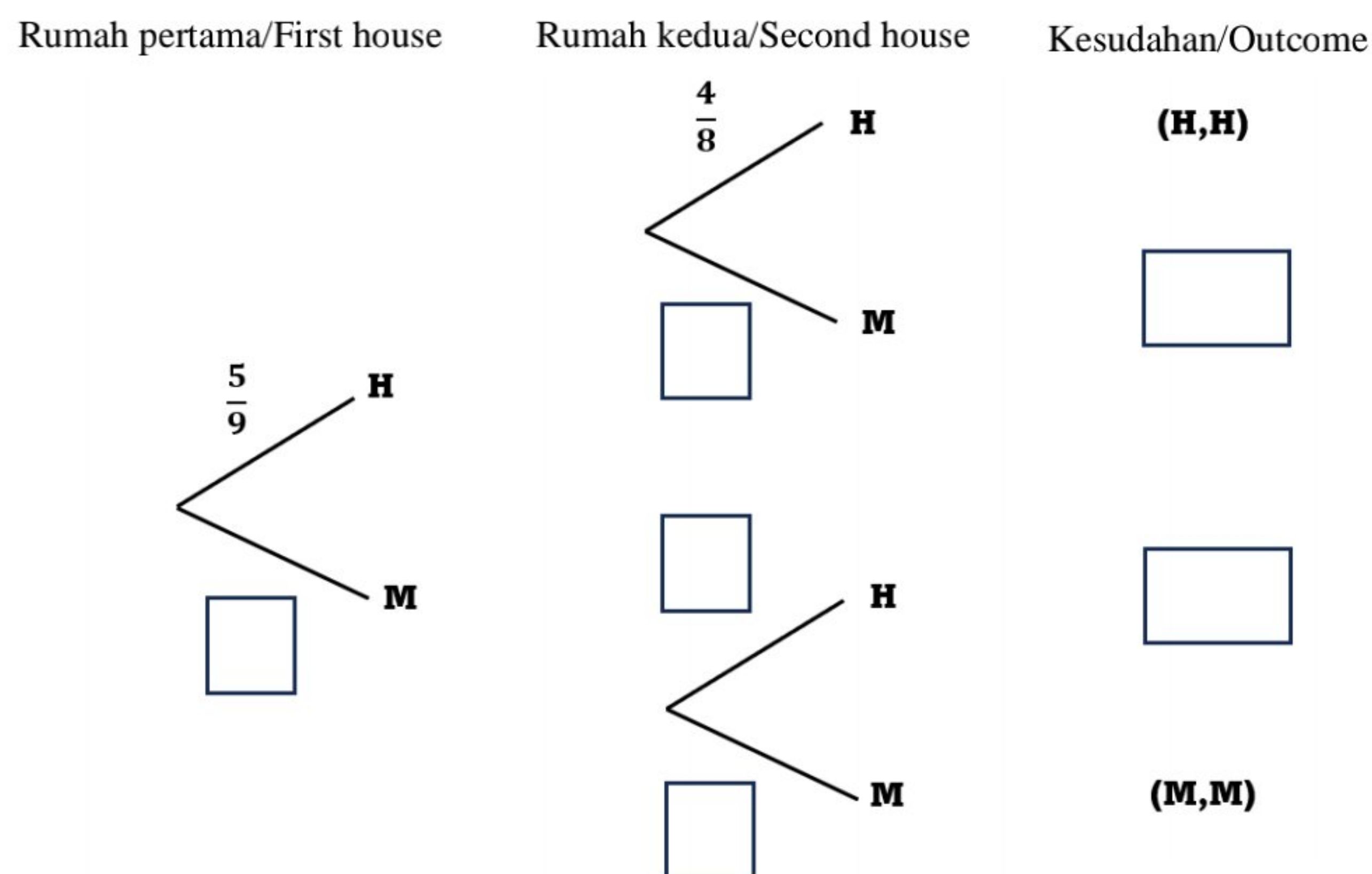
- (i) Lengkapkan situasi di atas dengan mengisi gambar rajah pokok pada Rajah 17.2  
*Represent the above situation using a tree diagram in Diagram 17.2.*

- (ii) Hitung kebarangkalian mendapat rumah kedua berwarna merah.

*Calculate the probability that the second house is red.* [6 markah/marks]

Jawapan/Answer :

(b) (i)



Rajah/Diagram 17.2

(ii)



- (c) Terdapat pelbagai gerai makanan semasa hari Pertandingan Rumah Melaka. Gerai Karipap Panas adalah gerai yang paling mendapat sambutan dari pelanggan. Diberi bilangan karipap yang dibeli oleh pelanggan pada hari tersebut.

*There are various of food outlets during Rumah Melaka Competition. Gerai Karipap Panas is the stall with the highest demand from the customers. Given below is the number of order from the customer on that day.*

|                                   |
|-----------------------------------|
| 1, 2, 4, 5, 7, 12, 11, 13, 17, 50 |
|-----------------------------------|

Hitung / *calculate*,

(i) min / *mean*.

(ii) median / *median*.

[4 markah/*marks*]

Jawapan / *Answer* :

(c) (i)

(ii)

**KERTAS SOALAN TAMAT**



NAMA: ..... TINGKATAN: .....

**PENTAKSIRAN INTERVENSI MASYHUR**  
**TINGKATAN 5**  
**TAHUN 2023**

**SET 2**  
**(PENGUKUHAN)**  
**MATEMATIK**  
**KERTAS 2**  
**(1449/2)**

**Dua jam tiga puluh minit**

**JANGAN BUKA MODUL INI SEHINGGA DIBERITAHU**

| <i>Untuk Kegunaan Pemeriksa</i>                                                                                                                                                                                                                                                                                              |           |              |                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|------------------|
| Bahagian                                                                                                                                                                                                                                                                                                                     | Soalan    | Markah Penuh | Markah diperoleh |
| 1 Tulis <b>nama</b> dan <b>tingkatan</b> anda pada ruang yang disediakan.<br>2 Kertas ini adalah dalam dwibahasa.<br>3 Soalan dalam Bahasa Melayu mendahului soalan yang sepadan dalam Bahasa Inggeris.<br>4 Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam Bahasa Melayu atau Bahasa Inggeris. | <b>1</b>  | 3            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>2</b>  | 3            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>3</b>  | 4            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>4</b>  | 3            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>5</b>  | 4            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>6</b>  | 4            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>7</b>  | 4            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>8</b>  | 4            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>9</b>  | 5            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>10</b> | 6            |                  |
| <b>B</b>                                                                                                                                                                                                                                                                                                                     | <b>11</b> | 9            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>12</b> | 10           |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>13</b> | 9            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>14</b> | 9            |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>15</b> | 8            |                  |
| <b>C</b>                                                                                                                                                                                                                                                                                                                     | <b>16</b> | 15           |                  |
|                                                                                                                                                                                                                                                                                                                              | <b>17</b> | 15           |                  |
| Jumlah                                                                                                                                                                                                                                                                                                                       |           |              |                  |

Soalan ini mengandungi 25 halaman bercetak.



## NOMBOR DAN OPERASI NUMBER AND OPERATIONS

$$1 \quad a^m \times a^n = a^{m+n}$$

$$2 \quad a^m \div a^n = a^{m-n}$$

$$3 \quad (a^m)^n = a^{mn}$$

$$4 \quad a^{\frac{1}{n}} = \sqrt[n]{a}$$

$$5 \quad a^{\frac{m}{n}} = (a^{\frac{1}{n}})^m = (a^{\frac{1}{n}})^m$$

$$6 \quad a^{\frac{m}{n}} = \sqrt[n]{a^m} = (\sqrt[n]{a})^m$$

$$7 \quad \text{Faedah mudah / Simple interest, } I = Prt$$

$$8 \quad \begin{array}{l} \text{Nilai matang / Maturity value, } M \\ = P \left( 1 + \frac{r}{n} \right)^{nt} \end{array}$$

$$9 \quad \text{Jumlah bayaran balik / Total repayment, } A = P + Prt$$

$$10 \quad \text{Premium} = \frac{\text{Nilai muka polisi}}{\text{RMx}} \times (\text{Kadar premium per RMx})$$

$$\text{Premium} = \frac{\text{Face value of policy}}{\text{RMx}} \times (\text{Premium rate per RMx})$$

$$11 \quad \text{Jumlah insurans yang harus dibeli} = \left( \begin{array}{c} \text{Peratusan} \\ \text{ko-insurans} \end{array} \right) \times \left( \begin{array}{c} \text{Nilai boleh} \\ \text{insurans harta} \end{array} \right)$$

$$\text{Amount of required insurance} = \left( \begin{array}{c} \text{Percentage of} \\ \text{co-insurance} \end{array} \right) \times \left( \begin{array}{c} \text{Insurable value} \\ \text{of property} \end{array} \right)$$

## PERKAITAN DAN ALGEBRA RELATIONSHIP AND ALGEBRA

$$1 \quad \text{Jarak / Distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$2 \quad \begin{array}{l} \text{Titik} \quad \quad \quad \text{Tengah} \quad \quad \quad / \quad \quad \quad \text{midpoint} \\ (x, y) = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \end{array}$$

$$3 \quad \text{Laju Purata} = \frac{\text{Jumlah jarak}}{\text{Jumlah masa}}$$

$$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$$

$$4 \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$4 \quad A^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$$

$$5 \quad \begin{array}{l} m = -\frac{\text{pintasan-y}}{\text{pintasan-x}} \\ m = -\frac{\text{y-intercept}}{\text{x-intercept}} \end{array}$$



## SUKATAN DAN GEOMETRI MEASUREMENT AND GEOMETRY

- 1 Teorem Pythagoras / *Pythagoras Theorem*  $c^2 = a^2 + b^2$
- 2 Hasil tambah sudut pedalaman poligon / *Sum of interior angles of a polygon*  
 $= (n - 2) \times 180^\circ$
- 3 Lilitan bulatan  $= \pi d = 2\pi j$   
*Circumference of circle*  $= \pi d = 2\pi r$
- 4 Luas bulatan  $= \pi j^2$   
*Area of circle*  $= \pi r^2$
- 5  $\frac{\text{Panjang lengkok}}{2\pi j} = \frac{\theta}{360^\circ}$   
 $\frac{\text{Arc length}}{2\pi r} = \frac{\theta}{360^\circ}$
- 6  $\frac{\text{Luas sektor}}{\pi j^2} = \frac{\theta}{360^\circ}$   
 $\frac{\text{Area of sector}}{\pi r^2} = \frac{\theta}{360^\circ}$
- 7 Luas layang  $= \frac{1}{2} \times \text{hasil darab panjang dua pepenjuru}$   
*Area of kite*  $= \frac{1}{2} \times \text{product of two diagonals}$
- 8 Luas trapezium  $= \frac{1}{2} \times \text{hasil tambah dua sisi selari} \times \text{tinggi}$   
*Area of trapezium*  $= \frac{1}{2} \times \text{sum of parallel sides} \times \text{height}$
- 9 Luas permukaan silinder  $= 2\pi j^2 + 2\pi jt$   
*Surface area of cylinder*  $= 2\pi r^2 + 2\pi rh$
- 10 Luas permukaan kon  $= \pi j^2 + \pi js$   
*Surface area of cone*  $= \pi r^2 + \pi rs$
- 11 Luas permukaan sfera  $= 4\pi j^2$   
*Surface area of sphere*  $= 4\pi r^2$
- 12 Isi padu prisma  $= \text{luas keratan rentas} \times \text{tinggi}$   
*Volume of prism*  $= \text{cross sectional area} \times \text{height}$
- 13 Isi padu silinder  $= \pi j^2 t$   
*Volume of cylinder*  $= \pi r^2 h$



- 14 Isi padu kon =  $\frac{1}{3}\pi j^2 t$   
*Volume of cone* =  $\frac{1}{3}\pi r^2 h$
- 15 Isi padu sfera =  $\frac{4}{3}\pi j^3$   
*Volume of sphere* =  $\frac{4}{3}\pi r^3$
- 16 Isi padu piramid =  $\frac{1}{3} \times \text{luas tapak} \times \text{tinggi}$   
*Volume of pyramid* =  $\frac{1}{3} \times \text{base area} \times \text{height}$
- 17 Faktor skala,  $k = \frac{PA'}{PA}$   
*Scale factor, k* =  $\frac{PA'}{PA}$
- 18 Luas imej =  $k^2 \times \text{luas objek}$   
*Area of image* =  $k^2 \times \text{area of object}$

### STATISTIK DAN KEBARANGKALIAN STATISTICS AND PROBABILITY

- 1 Min / Mean,  $\bar{x} = \frac{\sum x}{N}$
- 2 Min / Mean,  $\bar{x} = \frac{\sum fx}{\sum f}$
- 3 Varians / Variance,  $\sigma^2 = \frac{\sum x^2}{N} - \bar{x}^2 = \frac{\sum (x - \bar{x})^2}{N}$
- 4 Varians / Variance,  $\sigma^2 = \frac{\sum fx^2}{\sum f} - \bar{x}^2 = \frac{\sum f(x - \bar{x})^2}{\sum f}$
- 5 Sisihan piawai / Standard deviation,  $\sigma = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2} = \sqrt{\frac{\sum (x - \bar{x})^2}{N}}$
- 6 Sisihan piawai / Standard deviation,  $\sigma = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2} = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}}$
- 7  $P(A) = \frac{n(A)}{n(S)}$
- 8  $P(A') = 1 - P(A)$



**Bahagian A**

[40 markah]

*Jawab semua soalan.*

- 1 (a) Gambar rajah Venn di ruangan jawapan menunjukkan set  $A$  dan  $B$  dengan keadaan set semesta  $\xi = A \cup B$ . Pada rajah di ruangan jawapan, lorek set  $A \cap B$ .  
*The Venn diagram in the answer space shows sets  $A$  and  $B$  such that the universal set,  $\xi = A \cup B$ . On the diagram in the answer space, shade the set  $A \cap B$ .*

- (b) Diberi set semesta/ *It is given that the universal set*  
 $\xi = \{x: x \text{ ialah integer dan } 15 \leq x \leq 25\}$ ,  
 $\xi = \{x: x \text{ is an integer and } 15 \leq x \leq 25\}$ ,  
 $P = \{x: x \text{ ialah nombor kuasa dua sempurna}\}$   
 $P = \{\text{perfect square numbers}\}$   
 $Q = \{15, 20, 25\}$ .

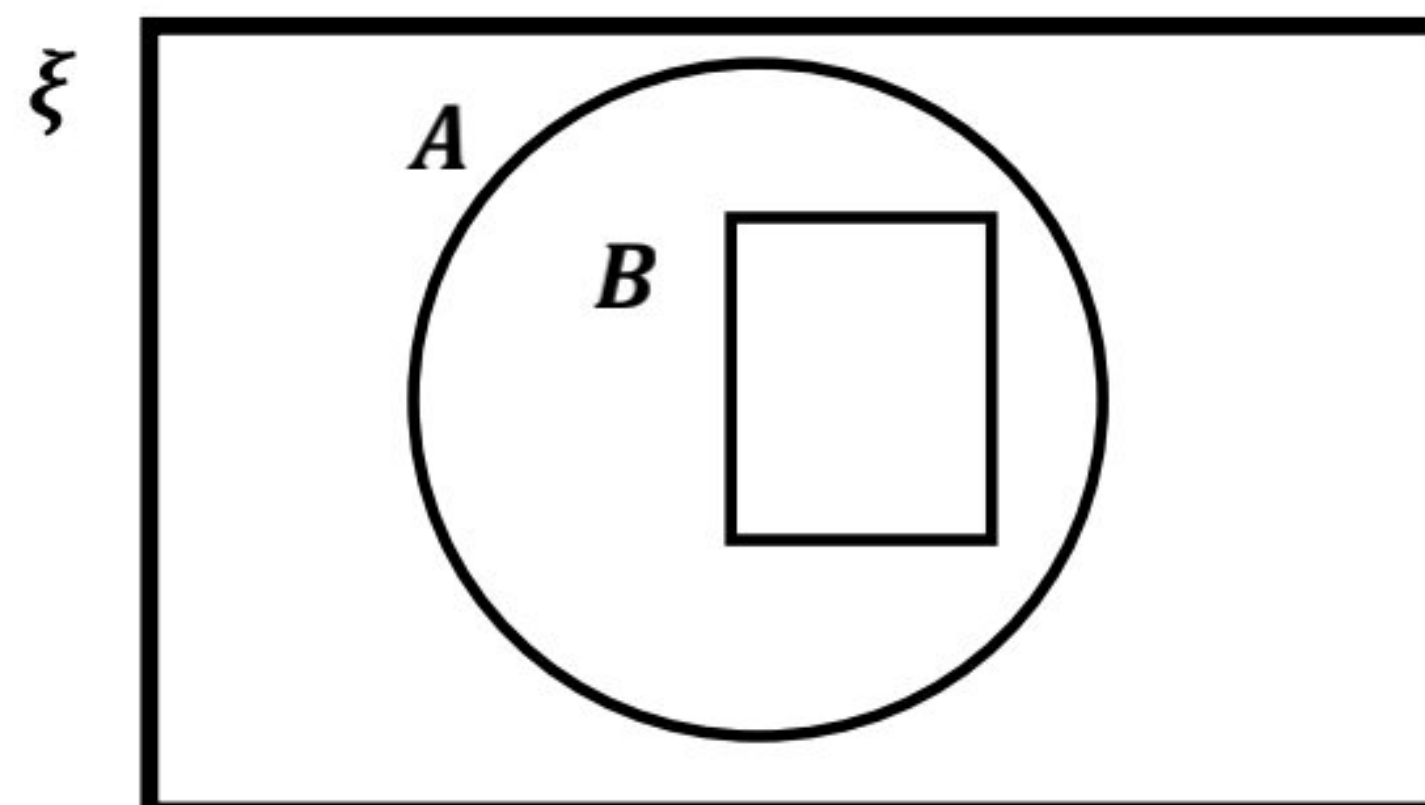
Lengkapkan gambar rajah Venn di ruang jawapan untuk menunjukkan hubungan antara set  $P$  dan set  $Q$ .

*Complete the Venn diagram in the answer space to show the relationship between set  $P$  and set  $Q$ .*

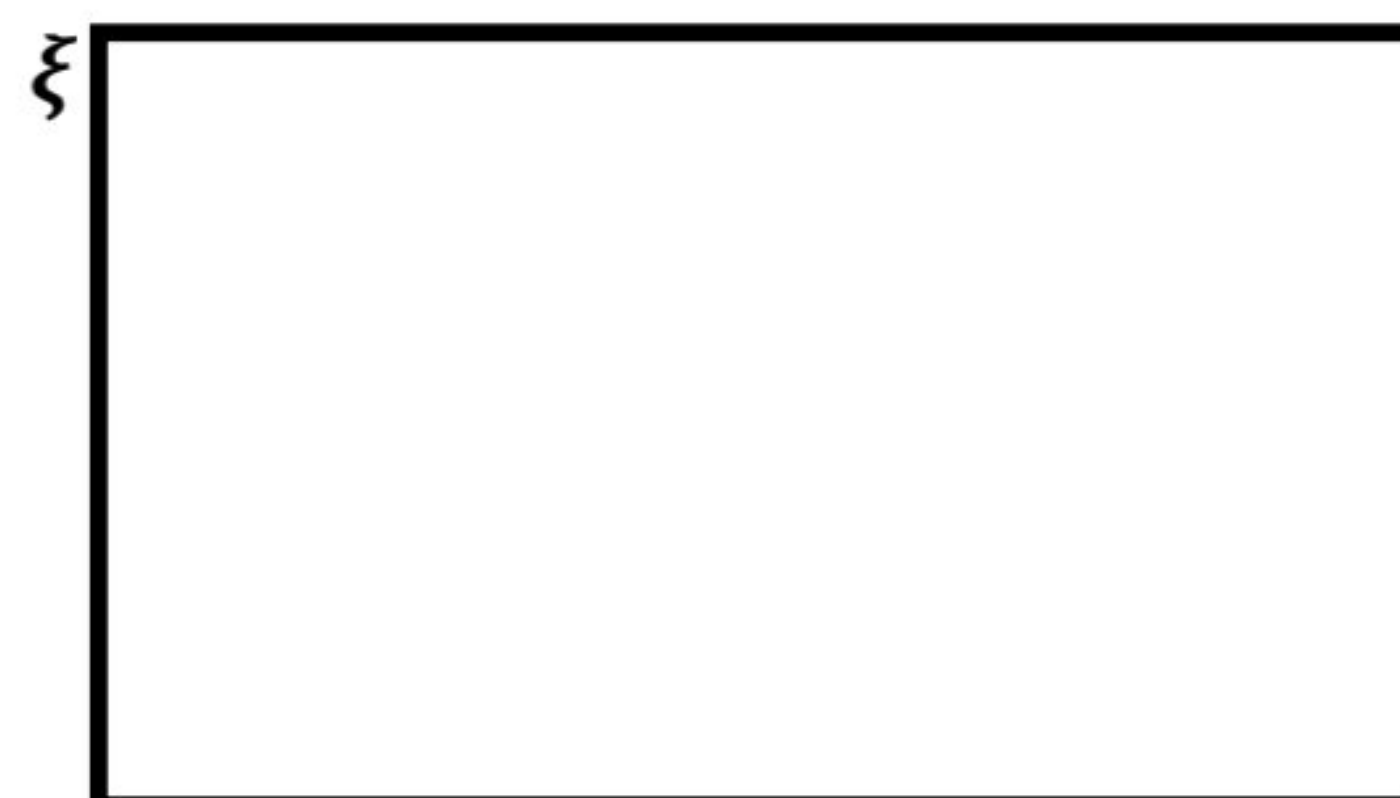
[3 markah/marks]

Jawapan/Answer :

(a)



(b)





- 2 (a) Tulis Premis 2 untuk melengkapi hujah yang berikut.  
*Write Premise 2 to complete the following argument.*

Premis 1 : Jika dua garis lurus bersilang, maka dua garis lurus itu tidak selari.  
*Premise 1 : If two straight lines intersect, then the two straight lines are not parallel.*  
 Premis/Premise 2 : .....  
 Kesimpulan/Conclusion : Dua garis lurus tidak bersilang.  
*Two straight lines do not intersect.*

- (b) Pola bagi jujukan nombor 1, 7, 17, 31, ... adalah seperti yang ditunjukkan di bawah.  
*The pattern of a number sequence, 1, 7, 17, 31, ... is as shown as below.*

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

$$7 = 2(4) - 1$$

$$17 = 2(9) - 1$$

$$31 = 2(16) - 1$$

.  
.  
.  
.  
.

Bentuk satu kesimpulan induktif yang kuat bagi jujukan nombor itu.

*Form a strong inductive conclusion for the number sequence.* [3 markah/marks]

Jawapan/Answer:

(a) Premis/ Premise 2:.....

(b) Kesimpulan/ Conclusion:.....



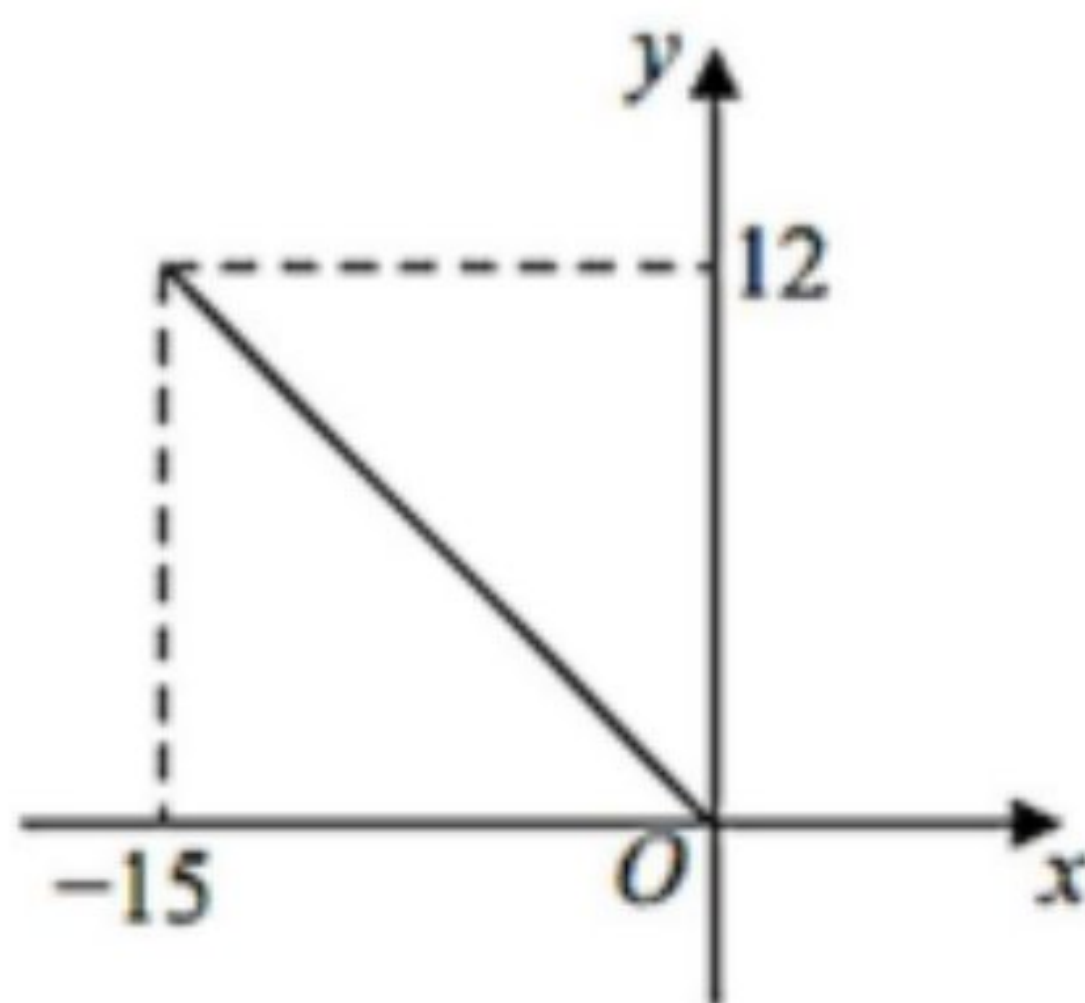
- 3 Encik Kudin, seorang penganalisis data mendapati bilangan pengunjung sebuah laman web Pendidikan,  $V$  berubah secara langsung dengan kuasa tiga bilangan status,  $S$  yang dimuat naik. Apabila 8 status dimuat naik, didapati bilangan pengunjung bertambah daripada 1500 kepada 3200 orang. Cari bilangan pengunjung apabila 30 status dimuatnaik.

*Encik Kudin, a data analyst found that the number of visitors to an education website,  $V$  changes directly with the third power of the number of statuses,  $S$  that are uploaded. When 8 status uploaded, it was found that the number of visitors increased from 1500 to 3200 people. Find the number of visitors when 30 status are uploaded.*

[4 markah/marks]

Jawapan/Answer:

- 4 Rajah di bawah menunjukkan graf linear yang mewakili suatu ubahan.  
*Diagram below shows a linear graph that represents a variation.*



- (a) Nyatakan jenis ubahan itu.  
*State the type of the variation.*
- (b) (i) Ungkapkan  $y$  dalam sebutan  $x$ .  
*Express  $y$  in term of  $x$ .*
- (ii) Seterusnya, hitung nilai  $y$  apabila  $x = 20$ .  
*Hence, calculate the value of  $y$  when  $x = 20$ .*

[4 markah/marks]

Jawapan/Answer:

(a)

(b)(i)

(ii)



- 5 Jadual 5 menunjukkan kadar premium tahunan bagi setiap RM1000 nilai muka insurans hayat boleh baharu tahunan yang ditawarkan oleh Syarikat Insurans K.

*Table 5 shows the annual premium rate schedule per RM1000 face value of a yearly renewable life insurance offered by Insurance Company K.*

| Umur (Tahun)<br><i>Age (Years)</i> | Lelaki / <i>Male</i> (RM)          |                          | Perempuan / <i>Female</i> (RM)     |                          |
|------------------------------------|------------------------------------|--------------------------|------------------------------------|--------------------------|
|                                    | Bukan Perokok<br><i>Non-smoker</i> | Perokok<br><i>Smoker</i> | Bukan Perokok<br><i>Non-smoker</i> | Perokok<br><i>Smoker</i> |
| 37                                 | 2.23                               | 2.42                     | 1.76                               | 1.92                     |
| 38                                 | 2.45                               | 2.67                     | 1.82                               | 2.04                     |
| 39                                 | 2.71                               | 2.91                     | 1.96                               | 2.34                     |

Jadual/Table 5

Diberi bahawa Syarikat insurans itu menawarkan polisi penyakit kritikal dengan perlindungan sebanyak 40% nilai muka asas. Dengan nilai muka sebanyak RM120000, hitung premium tahunan bagi seorang lelaki berumur 38 tahun yang merokok, sekiranya kadar premium bagi setiap RM1000 ialah RM2 mengikut umur dan status kesihatannya.

*Given that the insurance company offers critical illness policy with a coverage of 40% of the basic face value. Based on the face value of RM120000, calculate the annual premium for a 38-year-old man who smokes, if the premium rate for critical illness is RM2 per RM1000 on his age and health status.* [4 markah/marks]

Jawapan/Answer :

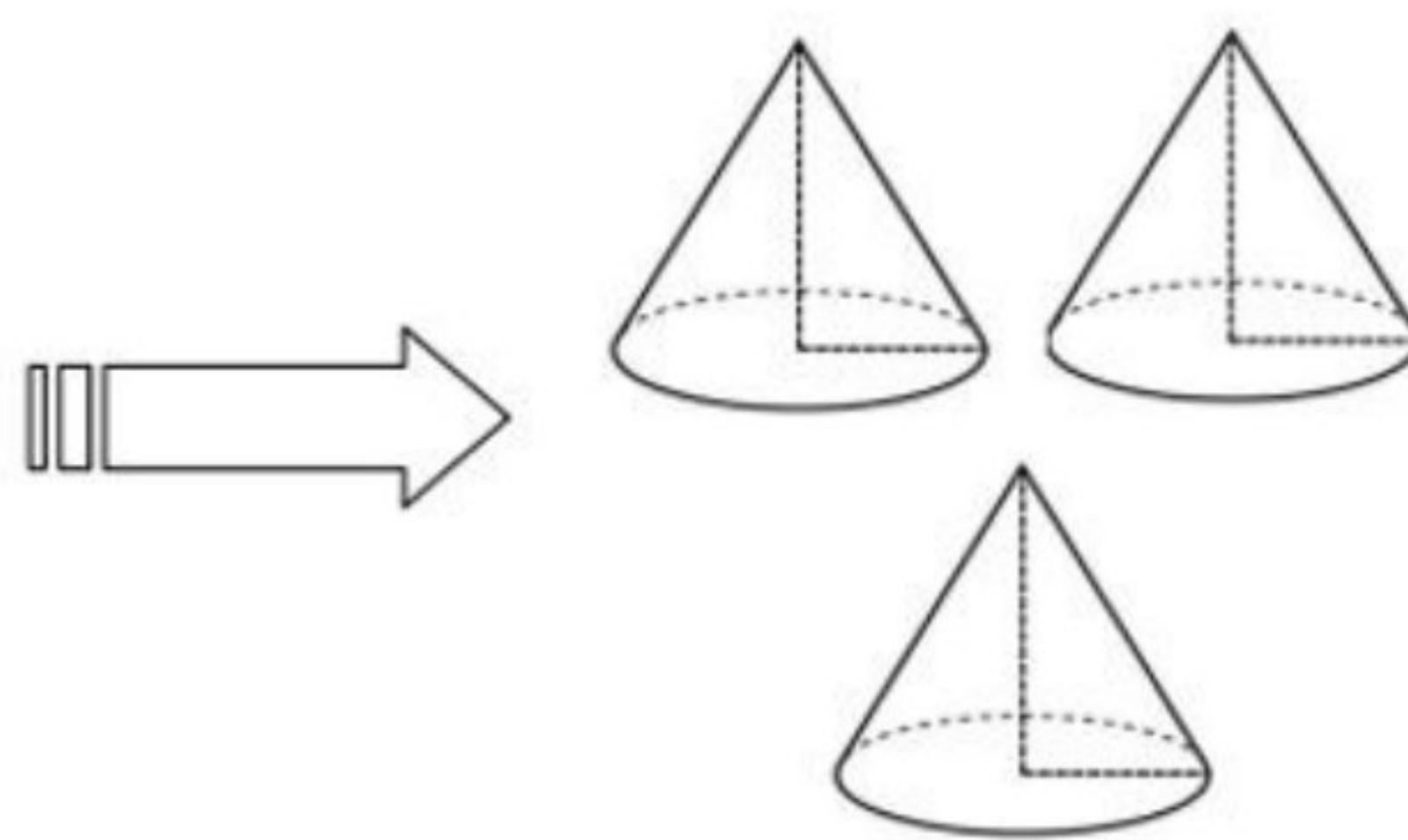


- 6 Musa mempunyai sebuah pepejal logam berbentuk sfera dan dia mahu meleburkannya untuk membentuk 3 pepejal berbentuk kon. Rajah 6(i) dan Rajah 6(ii) masing-masing menunjukkan sfera dan 3 kon tersebut. Setiap kon mempunyai jejari 2 cm dan tinggi tegak 9 cm.

*Musa has a solid metal sphere and he wants to melt it to form 3 cone-shaped solids. Diagram 6(i) and Diagram 6(ii) show the sphere and the 3 cones respectively. Each cone has a radius of 2 cm and the vertical height of 9 cm.*



Rajah/Diagram 6(i)



Rajah/Diagram 6(ii)

Menggunakan  $\pi = \frac{22}{7}$ , hitung jejari sfera logam itu.

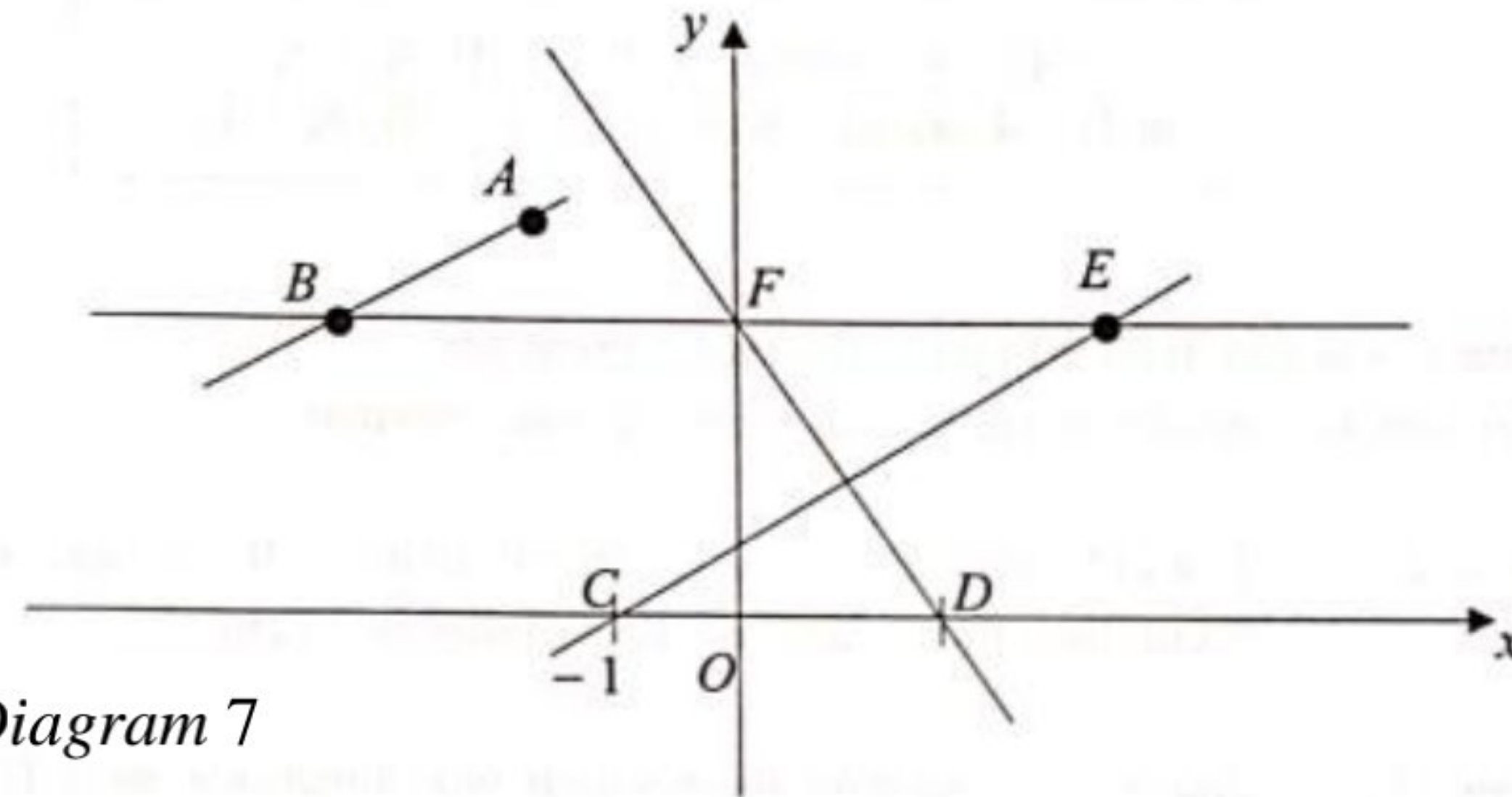
Using  $\pi = \frac{22}{7}$ , calculate the radius of the metal sphere.

[4 markah/marks]

Jawapan/Answer:



- 7 Pada rajah 7, diberi kecerunan garis lurus  $FD$  ialah  $-\frac{4}{3}$ .  $FD = FE$  dan  $F$  adalah titik tengah garis lurus  $BE$ . Titik  $C$  terletak pada paksi- $x$ . Garis lurus  $CE$  selari dengan garis lurus  $BA$ .  
*In diagram 7, given the gradient of straight line  $FD$  is  $-\frac{4}{3}$ .  $FD = FE$  and  $F$  is midpoint of the straight line  $BE$ . Point  $C$  lies on  $x$ -axis. The straight line  $CE$  is parallel to straight line  $BA$ .*



Rajah/Diagram 7

Cari persamaan garis lurus  $BA$ .

*Find the equation of straight line  $BA$ .*

[4 markah/marks]

Jawapan/Answer:

- 8 Dalam satu perlumbaan basikal sejauh 150 km, laju purata para pelumba ialah  $(3x + 10)$  km jam<sup>-1</sup>. Jika masa purata yang diambil oleh mereka untuk menamatkan perlumbaan itu ialah  $\left(\frac{1}{5}x + \frac{7}{4}\right)$  jam, cari purata laju pelumba-pelumba itu.

*In a bicycle race of 150 km, the average speed of the riders is  $(3x + 10)$  kmh<sup>-1</sup>. If the average time taken by them to finish the race is  $\left(\frac{1}{5}x + \frac{7}{4}\right)$  hours, find the average speed of the runners.*

[4 markah/marks]

Jawapan/Answer:



- 9 Kejadian air laut pasang dan surut di pinggir sebuah pantai dapat diwakilkan oleh graf  $y = 6 + 2 \sin 30t$  dengan keadaan  $y$  ialah kedalaman air laut dalam m dan  $t$  ialah masa dalam jam selepas pukul 12 tengah malam.

*The occurrence of high and low tides at the edge of a beach can be represented by the graph  $y = 6 + 2 \sin 30t$  where  $y$  is the depth of sea water in m and  $t$  is the time in hours after 12 midnight.*

Cari/Find

- (a) tempoh bagi graf  $y = 6 + 2 \sin 30t$   
*period for the graph  $y = 6 + 2 \sin 30t$*
- (b) waktu apabila aras air laut pasang adalah tertinggi dan seterusnya kedalaman air laut pada ketika itu  
*the time when the tidal sea level is the highest and then the depth of the sea at that time.* [5 markah/marks]

Jawapan/Answer:

a)

b)



- 10** Encik Nasir merancang untuk membuka sebuah kedai menjual daging kambing dan ayam sejuk beku di kawasan perumahannya. Beliau menerima dua pakej harga borong daripada pembekal. Jadual 10 menunjukkan kuantiti dan jumlah harga yang diberikan oleh pembekal itu.

*Encik Nasir plans to open a shop selling frozen lamb and chicken in his residential area. He received two wholesale price packages from a supplier. Table 10 shows the quantities and total prices given by the supplier.*

|                             | Kuantiti/Quantity (kg) |                 | Jumlah (RM)<br>Amount (RM) |
|-----------------------------|------------------------|-----------------|----------------------------|
|                             | Kambing<br>Lamb        | Ayam<br>Chicken |                            |
| <b>Pakej A</b><br>Package A | 70                     | 30              | 1 185                      |
| <b>Pakej B</b><br>Package B | 35                     | 60              | 795                        |

Jadual/Table 10

Dengan menggunakan kaedah matriks, hitung harga bagi 1 kg daging kambing dan 1 kg ayam itu.

*By using matrix method, calculate the price of 1 kg of lamb and of 1 kg of chicken.*

[6 markah/marks]

Jawapan/Answer :



**Bahagian B**

[45 markah]

*Jawab semua soalan.*

- 11** Alia merupakan seorang tukang jahit. Beliau menjahit dua jenis baju, baju melayu X dan baju melayu Y. Alia menjahit beberapa helai baju melayu X dan baju melayu Y pada suatu bulan tertentu. Maklumat di bawah berkaitan dengan jahitan kedua-dua jenis baju oleh Alia pada bulan tersebut.

*Alia is a tailor. She sews two type of dresses, baju melayu X and baju melayu Y. Alia sews few pairs of baju melayu X and baju melayu Y in a certain month. The information below is related to both types of dresses sewed by Alia during the month.*

- Jumlah baju melayu yang dijahit selebih-lebihnya 50 helai.  
*The total number of baju melayu sewn is at most 50 pairs.*
- Bilangan maksimum baju melayu X ialah 25 helai.  
*The maximum number of baju melayu X is 25 pairs*
- Bilangan minimum baju melayu Y ialah 20 helai.  
*The minimum number of baju melayu Y is 20 pairs*

Berdasarkan maklumat di atas,

*Based on information above,*

- (a) Tulis tiga ketaksamaan linear selain  $x \geq 0$  dan  $y \geq 0$  yang mewakili situasi di atas.  
*Write three linear inequalities, other than  $x \geq 0$  and  $y \geq 0$  which represent the above situation.*
- (b) (i) Lukis dan lorek rantau sepunya yang memuaskan ketaksamaan linear yang dibina.  
*Draw and shaded the common region that satisfies the linear inequalities constructed.*
- (ii) Daripada graf, tentukan bilangan minimum dan maksimum baju melayu Y yang mungkin dijahit jika bilangan baju melayu X ialah 15 helai.  
*From a graph, determine the minimum and maximum number of baju melayu Y that may be sewn if the number of baju melayu X is 15 pairs.*

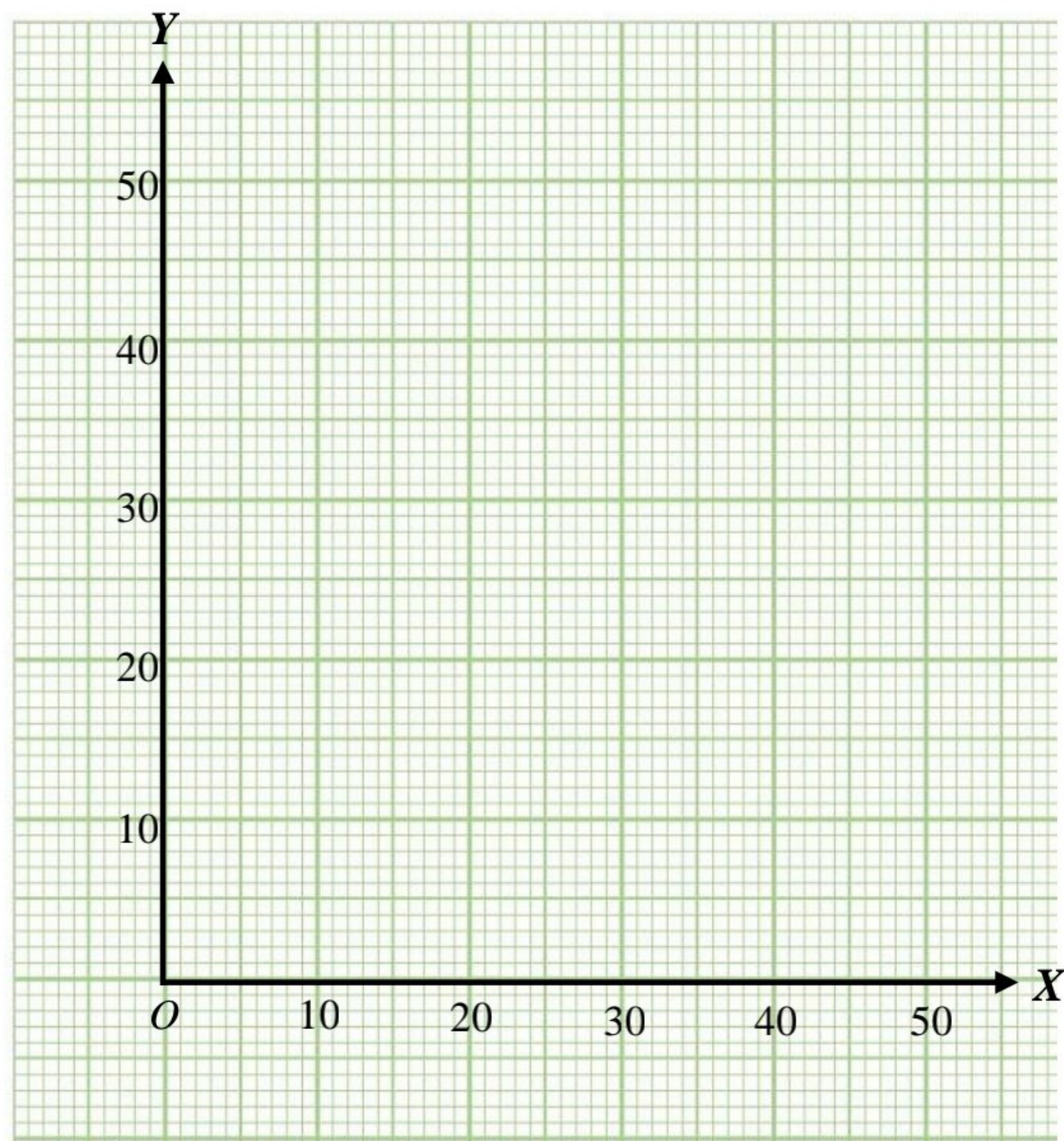
[9 markah/marks]



Jawapan/Answer :

(a)

(b)(i)



(ii)

- 12 (a) Transformasi **P** ialah satu pantulan pada garis  $x = k$ . Transformasi **Q** ialah satu putaran  $90^\circ$  ikut arah jam pada pusat  $(0,3)$ . Transformasi **R** ialah satu translasi  $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$ .

*Transformation **P** is a reflection in the line  $x = k$ . Transformation **Q** is a rotation of  $90^\circ$  clockwise at the centre  $(0,3)$ . Transformation **P** is a translation  $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$ .*

- (i) Titik  $(5,1)$  ialah imej bagi titik  $(1,1)$  di bawah penjelmaan **P**. Nyatakan nilai  $k$ .  
*Point  $(5,1)$  is the image of point  $(1,1)$  under the transformation **P**. State the value of  $k$ .*

- (ii) Cari koordinat imej bagi titik  $(2,2)$  di bawah setiap gabungan transformasi berikut:

*Find the coordinates of the image of point  $(2,2)$  under each of the following combined transformations:*

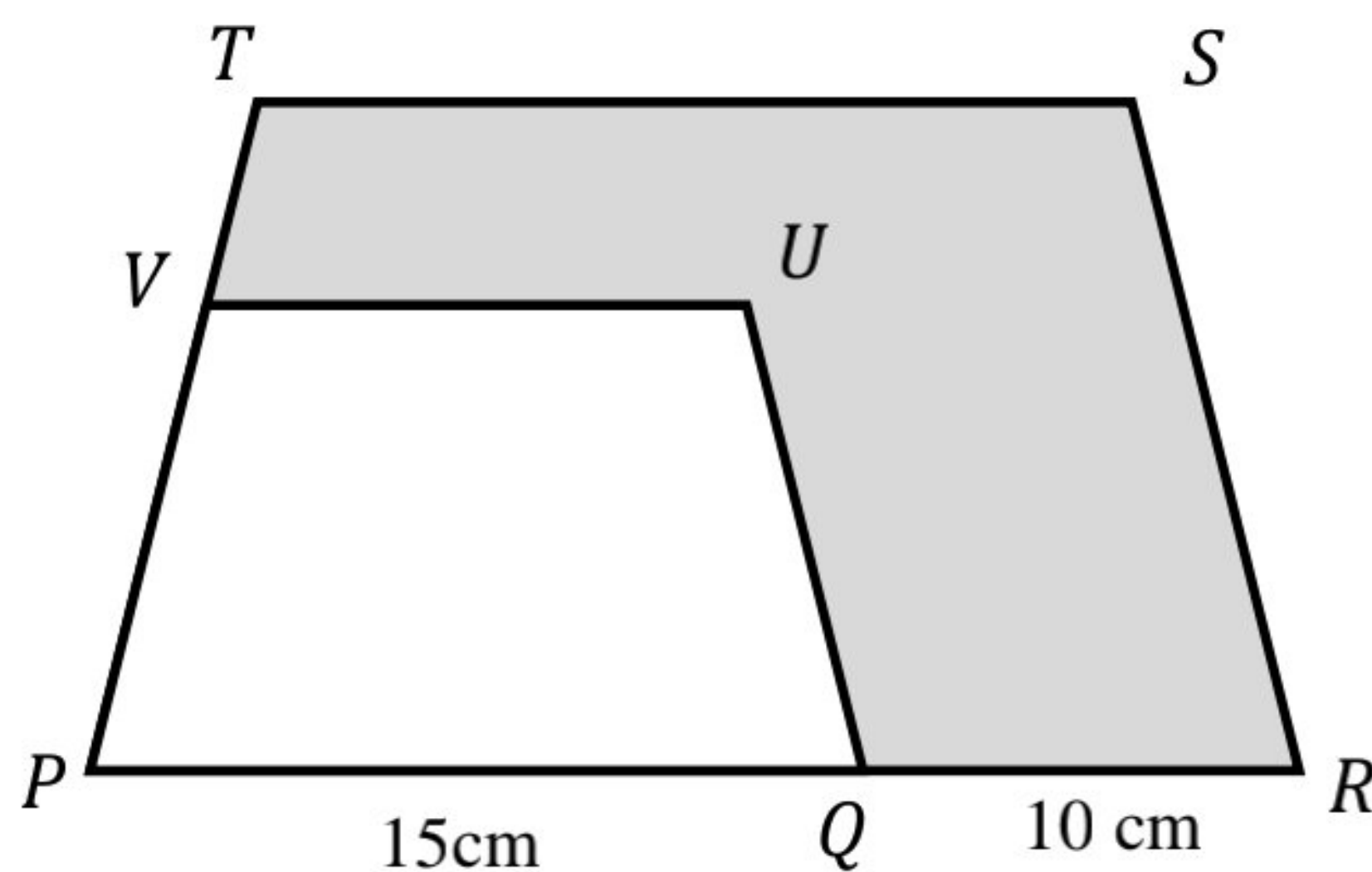
- (a) **R**<sup>2</sup>  
 (b) **RQ**

[5 markah/marks]



- (b) Dalam rajah di bawah, trapezium  $PQRST$  ialah imej bagi trapezium  $PQUV$  di bawah suatu pembesaran pada pusat  $P$ .

*In the diagram, trapezium  $PQRST$  is the image of trapezium  $PQUV$  under an enlargement at centre  $P$ .*



Rajah/Diagram 12

Diberi bahawa luas kawasan berlorek ialah  $160\text{ cm}^2$ , hitung

*Given that the area of the shaded region is  $160\text{ cm}^2$ , calculate*

- (i) faktor skala bagi pembesaran itu.

*the scale factor of the enlargement.*

- (ii) luas, dalam  $\text{cm}^2$ , trapezium  $PRST$ .

*the area, in  $\text{cm}^2$ , of trapezium  $PRST$ .*

[5 markah/marks]

Jawapan / Answer :

(a) (i)  $k = \dots\dots\dots$

(ii) (a)

(b)

(b) (i)

(ii)



- 13 (a) Nyatakan dua tujuan percukaian.

*State two purposes of taxation .*

[2 markah/marks]

- (b) Amalina mempunyai sebuah kereta. Nyatakan jenis cukai yang perlu dibayar oleh Amalina untuk keretanya. Kepada siapakah Amalina perlu membayar cukai itu?  
*Amalina has a car. State the type of tax that Amalina has to pay for her car. Who should Amalina pay the tax to?*

[2 markah/marks]

- (c) Jadual 13 menunjukkan kadar cukai jalan kereta milik persendirian di Semenanjung Malaysia. Amalina memiliki dua buah kereta kegunaan persendirian dengan kapasiti enjin 1456 cc dan 1980 cc di Kelantan. Hitung beza cukai jalan yang perlu dibayar oleh Amalina untuk setiap kereta itu.

*Table 13 shows the road tax rates for private car in Peninsular Malaysia. Amalina owns two private cars with engine capacity of 1 496 cc and 1 998 cc in Pahang. Calculate the difference in road tax that Amalina has to pay for each car.*

| Kapasiti enjin<br><i>Engine capacity (cc)</i> | Kadar cukai jalan<br><i>Road tax rate</i> |                                                                                    |
|-----------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------|
|                                               | Kadar asas<br><i>Base rate</i>            | Kadar progresif<br><i>Progressive rate</i>                                         |
| 1 401 – 1 600                                 | RM90.00                                   | –                                                                                  |
| 1 801 – 2 000                                 | RM280.00                                  | + RM0.50 setiap cc melebihi 1 800 cc<br><i>+ RM0.50 each cc exceeding 1 800 cc</i> |

Jadual/Table 13

[5 markah/marks]

Jawapan/Answer :

(a)

(b)

(c)



- 14** Jadual 14.1 menunjukkan taburan kekerapan umur bagi 84 orang pekerja di sebuah kilang.  
*Table 14.1 shows the age frequency distribution for 84 workers in a factory.*

| Umur (tahun)<br><i>Age (year)</i> | Kekerapan<br><i>Frequency</i> |
|-----------------------------------|-------------------------------|
| 21 – 25                           | 3                             |
| 26 – 30                           | 6                             |
| 31 – 35                           | 10                            |
| 36 – 40                           | 17                            |
| 41 – 45                           | 33                            |
| 46 – 50                           | 13                            |
| 51 – 55                           | 2                             |

Jadual/Table 14.1

- a) Hitung min umur bagi seorang pekerja itu.  
*Calculate the mean age of a worker.*  
[3 markah/marks]
- b) Berdasarkan Jadual 14.1, lengkapkan jadual 14.2 di ruang jawapan dengan menulis nilai-nilai sempadan atas dan kekerapan longgokan,  
*Based on Table 14, complete table 14.2 in the answer space by writing the values of the upper boundary and the cumulative frequency.*  
[2 markah/marks]
- c) Dengan menggunakan skala 2 cm kepada 5 tahun pada paksi mengufuk dan 2 cm kepada 10 orang pekerja pada paksi mencancang, lukis satu ogif bagi data itu.  
*By using the scales of 2 cm to 5 years on the horizontal axis and 2 cm to 10 workers on the vertical axis, draw an ogive for data.*  
[4 markah/marks]



Jawapan/Answer :

(a)

(b)

| Sempadan atas<br><i>Upper boundary</i> | Kekerapan longgokan<br><i>Cumulative frequency</i> |
|----------------------------------------|----------------------------------------------------|
| 20.5                                   | 0                                                  |
| 25.5                                   |                                                    |
|                                        |                                                    |
|                                        |                                                    |
|                                        |                                                    |
|                                        |                                                    |
|                                        |                                                    |
| 55.5                                   | 84                                                 |

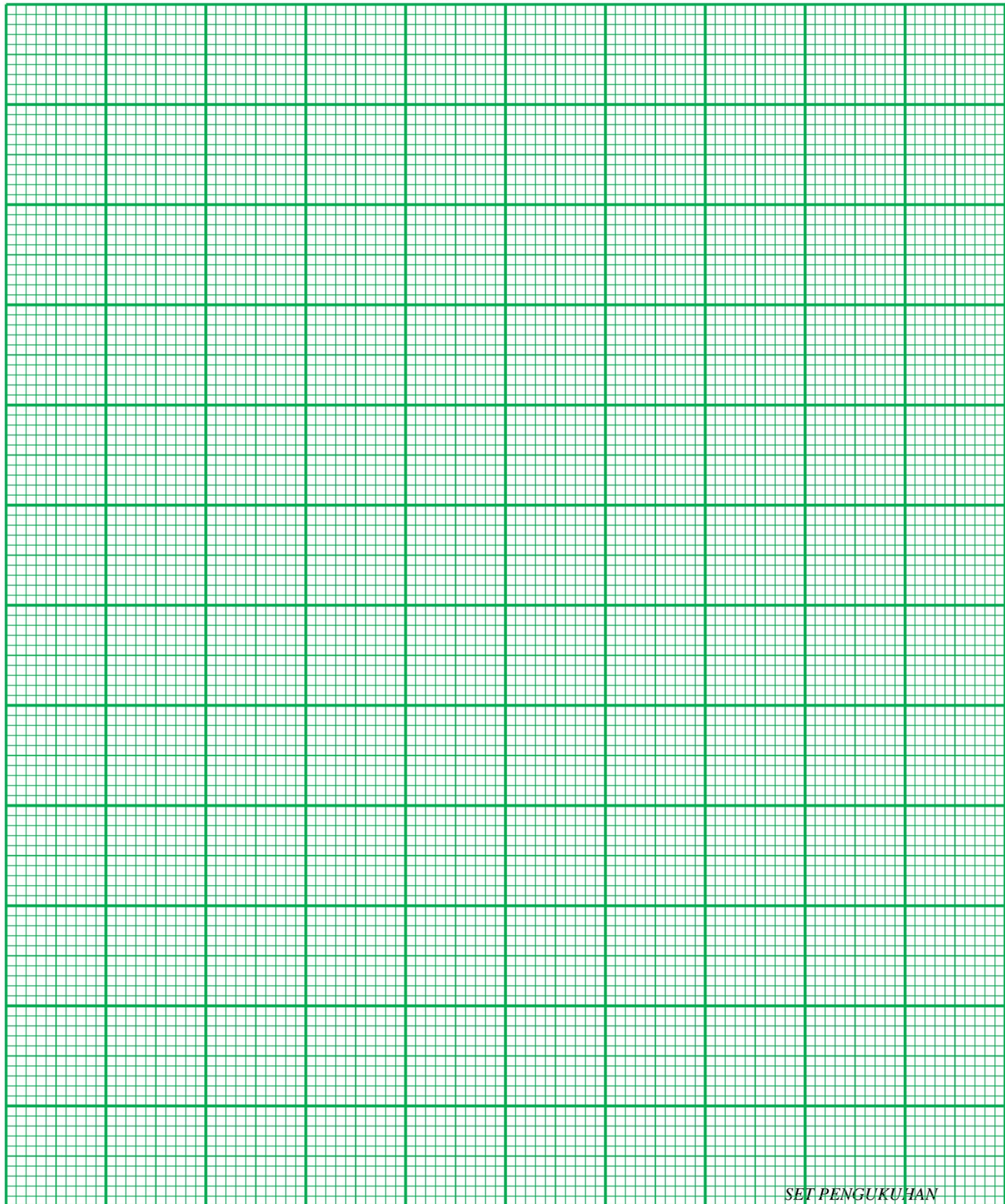
Jadual/*Table* 14.2

(c) Rujuk graf / *Refer graph*

(d)



Kertas graf untuk soalan 14(c)



SET PENGUKUHAN

UNIT SAINS DAN MATEMATIK, SEKTOR PEMBELAJARAN, JABATAN PENDIDIKAN NEGERI MELAKA



- 15 (a) Lengkapkan Jadual 15 di ruang jawapan bagi persamaan  $y = -\frac{36}{x}$  dengan menulis nilai-nilai  $y$  apabila  $x = 6$  dan  $x = 10$ .

*Complete Table 15 in the answer space for the equation  $y = -\frac{36}{x}$  by writing down the values of  $y$  when  $x = 6$  and  $x = 10$ .*

[2 markah/marks]

- (b) Untuk ceraian soalan ini, gunakan kertas graf yang disediakan. Anda boleh menggunakan pembaris fleksibel. Menggunakan skala 2 cm kepada 1 unit pada paksi- $x$  dan 2 cm kepada 5 unit pada paksi- $y$ , lukis graf  $y = -\frac{36}{x}$  bagi  $0 \leq x \leq 14$ .

*For this part of the question, use the graph paper provided. You may use a flexible curve ruler. Using a scale of 2 cm to 1 unit on the  $x$ -axis and 2 cm to 5 units on the  $y$ -axis, draw the graph of  $y = -\frac{36}{x}$  for  $0 \leq x \leq 14$ .*

[4 markah/marks]

- (c) Daripada graf anda, cari  
*From your graph, find*  
 (i) nilai  $x$  apabila  $y = -6.8$ ,  
*the value of  $x$  when  $y = -6.8$ ,*

- (ii) nilai  $y$  apabila  $x = 7$   
*the value of  $y$  when  $x = 7$*

[2 markah/marks]

Jawapan/ Answer:

(a)  $y = -\frac{36}{x}$

|     |     |     |    |   |      |    |    |      |
|-----|-----|-----|----|---|------|----|----|------|
| $x$ | 2   | 3   | 4  | 6 | 8    | 10 | 12 | 14   |
| $y$ | -18 | -12 | -9 |   | -4.5 |    | -3 | -2.6 |

Jadual/Table 15

- (b) Rujuk graf / Refer graph.

(c)(i)  $x = \dots\dots\dots$

(ii)  $y = \dots\dots\dots$

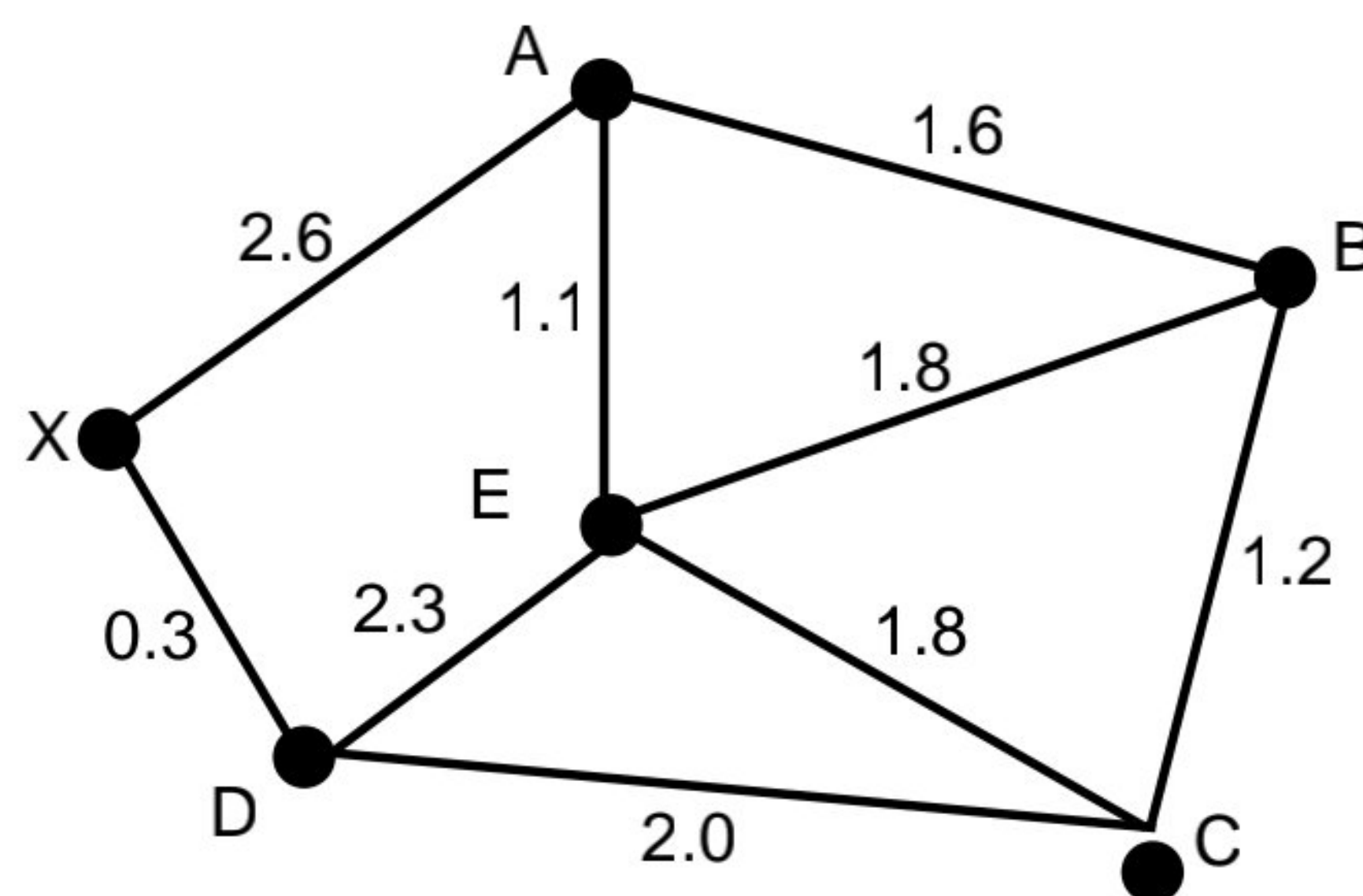


**Bahagian C**

[15 markah]

*Bahagian ini mengandungi dua soalan. Jawab satu soalan.*

- 16** Rangkaian dalam Rajah 5 menunjukkan enam lokasi di sebuah taman perumahan. Pemberat pada graf itu mewakili jarak, dalam km.  
*The network in Diagram 5 shows six locations in a housing area. The weight in the graph represents the distance, in km.*



Rajah/Diagram 15

Puan Afifah merupakan pegawai yang membuat bancian isi rumah. Dia mula bertugas dari Pejabat X pada jam 8 pagi dan perlu menghabiskan tugasannya di lima buah rumah, A, B, C, D dan E, sebelum pulang ke Pejabat X.

*Puan Afifah is an officer who conducts the household census. She starts her work from office X at 8 o'clock in the morning and needs to finish her duties at five houses, A, B, C, D and E, before returning to office X.*

- (a) (i) Dengan mengisi tempat kosong di ruangan jawapan dengan huruf A hingga E bagi mewakili lima buah rumah, nyatakan laluan terpendek yang di ambil oleh Puan Afifah.  
*By filling in the blanks in the answer space with the letters A to E to represent the five houses, state the shortest route taken by Puan Afifah.*
- (ii) Lukis satu pokok yang mewakili laluan Puan Afifah itu. Seterusnya, hitung jarak terpendek, dalam km, bagi laluan tersebut.  
*Draw a tree that represents Puan Afifah's route. Hence, calculate the shortest distance, in km, of the route.* [6 markah/marks]



- (b) Puan Afifah menjalankan sesi bancian selama 20 minit bagi setiap rumah. Dia memandu dengan laju purata 18 km/j di taman perumahan itu melalui jarak terpendek yang dinyatakan di (a)(ii). Pada pukul berapakah, dalam sistem 12 jam, dia sampai ke pejabat X setelah selesai tugasannya?

*Puan Afifah does the census session for 20 minutes at every house. She drives at an average speed of 18 km/h in that housing area along the shortest distance stated in (a)(ii). At what time, in 12-hour system, does she return to office X after completing her duties?*

[4 markah/marks]

- (c) Lengkapkan graf jarak-masa pada ruang jawapan yang mewakili pergerakan Puan Afifah dari Pejabat X ke rumah kedua.

*Complete the distance-time graph in the answer space that represents Puan Afifah's movement from office X to the second house.*

[5 markah/marks]

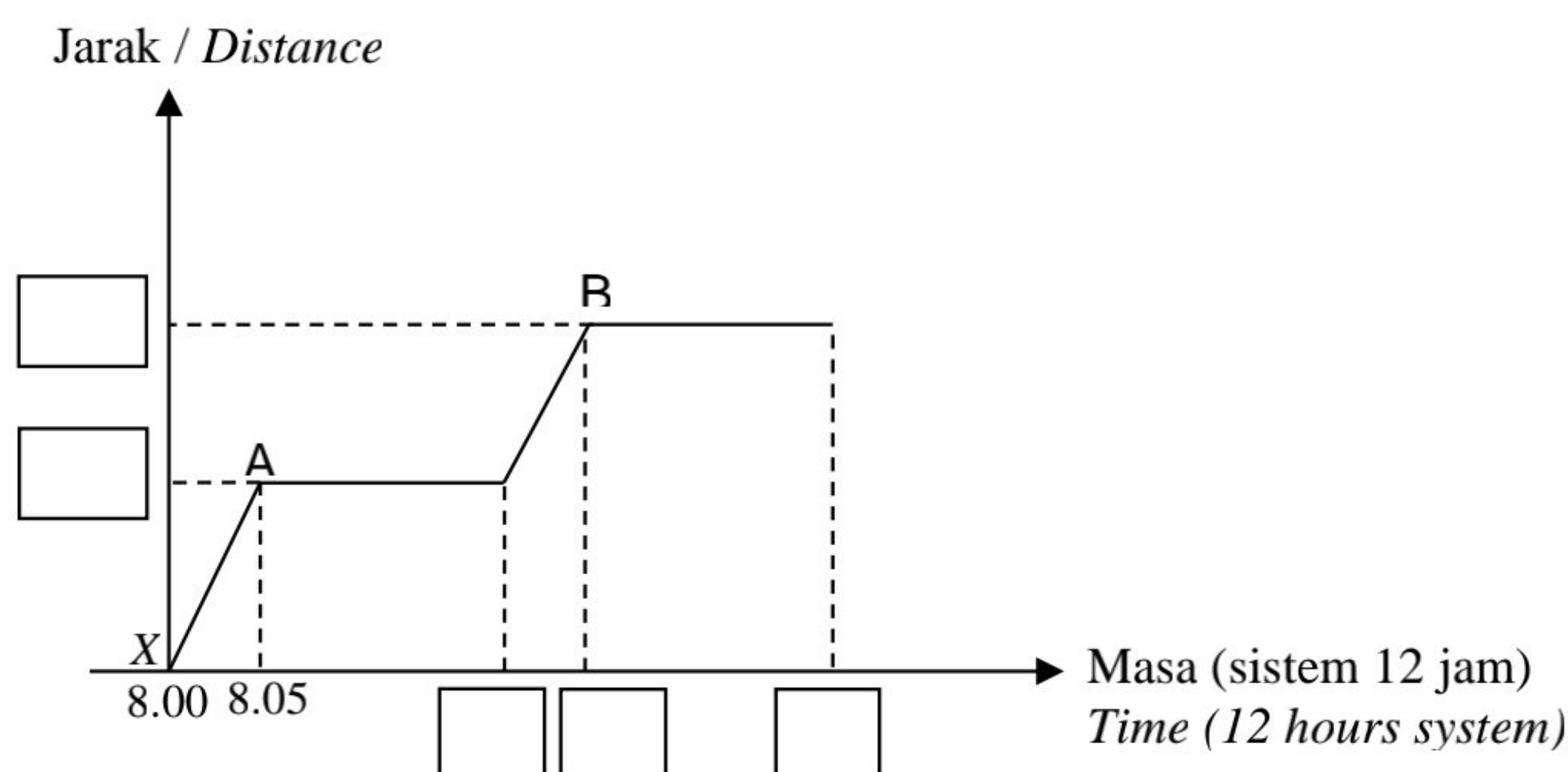
Jawapan/Answer :

(a)(i) Pejabat / Office X → \_\_\_\_\_ → \_\_\_\_\_ → \_\_\_\_\_ → \_\_\_\_\_ →  
 \_\_\_\_\_ → Pejabat / Office X

(ii)

(b)

(c)





- 17 (a) Dalam satu aktiviti kokurikulum, Kelab Katering memperkenalkan tiga jenis makanan kepada 50 orang ahlinya. Sebanyak 24 orang ahli ditugaskan memasak roti jala ( $R$ ), 32 orang ahli memasak puding roti ( $P$ ), 28 orang ahli memasak kek batik ( $K$ ). 18 orang ahli pula ditugaskan untuk memasak roti jala dan puding roti, 20 orang ahli memasak puding roti dan kek batik manakala 14 orang ahli perlu memasak ketiga-tiga makanan, iaitu roti jala, puding roti dan kek batik. Bilangan ahli yang hanya memasak puding roti adalah dua kali bilangan ahli yang hanya memasak kek batik.

*In a co-curricular activity, the Catering Club has introduced three types of foods to its 50 members. 24 members were assigned to cook roti jala ( $R$ ), 32 members to cook bread pudding ( $P$ ), 28 members to cook kek batik ( $K$ ). 18 members were assigned to cook roti jala and bread pudding, 20 members cooked bread pudding and kek batik while 14 members had to cook all the three foods, which is roti jala, bread pudding and kek batik. The number of members who cook only bread pudding is twice the number of members who cook kek batik.*

- (i) Lukis satu gambar rajah Venn untuk mewakili semua maklumat itu.

*Draw a Venn diagram to represent all the information.*

[4 markah/marks]

- (ii) Hitung bilangan ahli yang hanya memasak satu jenis masakan sahaja.

*Calculate the number of members who cook one type of food only.*

[2 markah/marks]

Jawapan / Answer :

(a)(i)

(ii)



- (b) Rahman ialah seorang ahli Kelab Katering ke sekolah sama ada menaiki motosikal atau kereta. Kebarangkalian Rahman menaiki motosikal ialah  $\frac{3}{5}$ . Jika dia menaiki motosikal, kebarangkalian dia lewat ke sekolah ialah  $\frac{2}{7}$  dan jika dia menaiki kereta, kebarangkalian dia lewat ke sekolah ialah  $\frac{1}{8}$ .

*Rahman is a member of Catering Club travels to school either by motorcycle or car. The probability of Rahman riding a motorcycle is  $\frac{3}{5}$ . If he rides a motorcycle, the probability that he is late for school is  $\frac{2}{7}$  and if he travels by car, the probability that he is late for school is  $\frac{1}{8}$ .*

- (i) Cari kebarangkalian bahawa dia menaiki motosikal dan lewat ke sekolah.

*Find the probability that he rides a motorcycle and late for school.*

[2 markah/marks]

- (ii) Cari kebarangkalian bahawa dia lewat ke sekolah.

*Find the probability that he is late for school.*

[3 markah/marks]

Jawapan/Answer :

(i)

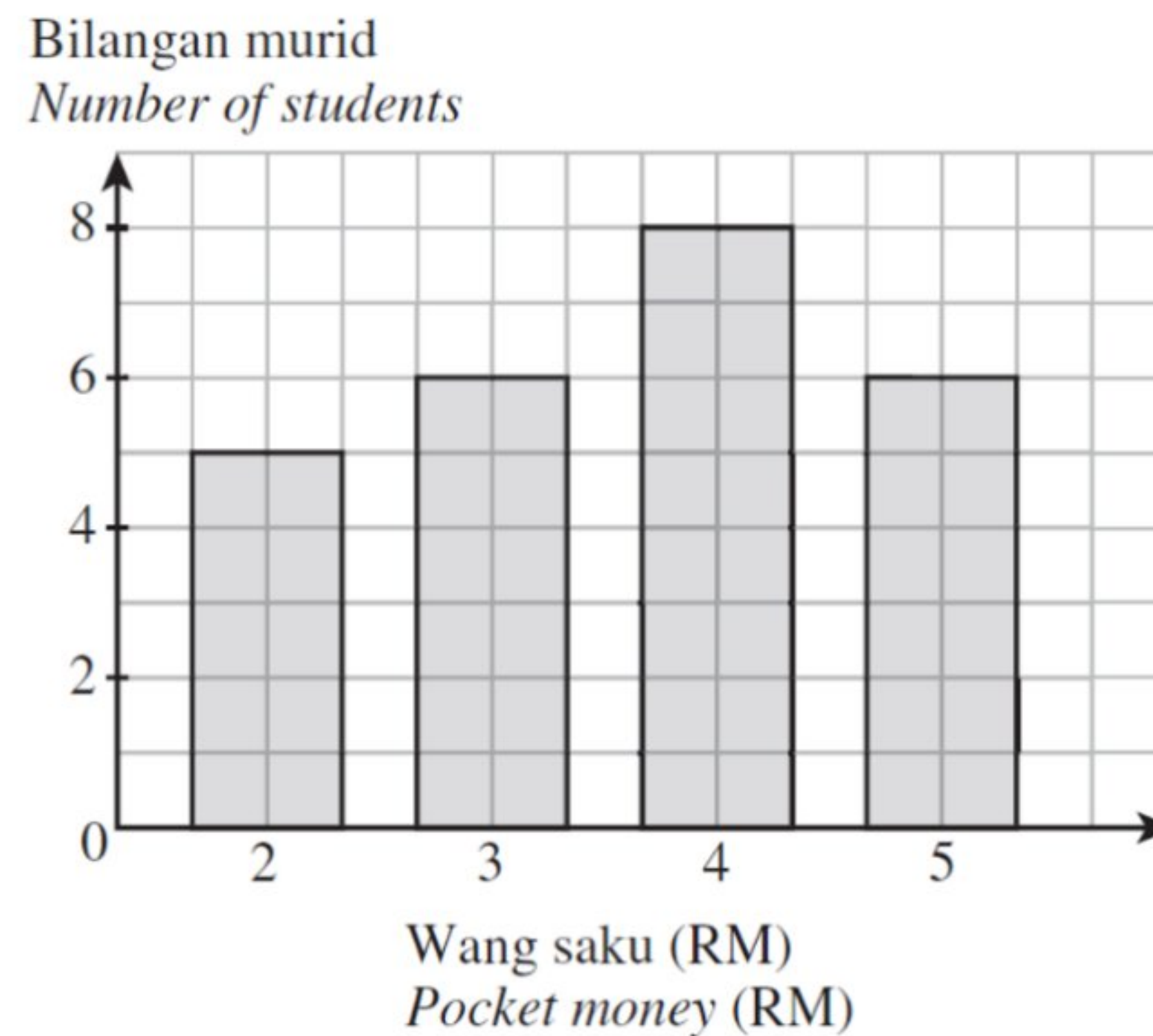
(ii)



- (c) Carta palang dalam Rajah 17 menunjukkan wang saku sekumpulan murid Kelab Katering.

*The bar chart in Diagram 17 shows the pocket money of a group of students of Catering Club.*

**Wang Saku Sekumpulan Murid Kelab Katering**  
***Pocket Money of a Group of Students Catering Club***



Rajah/Diagram 17

Cari / Find

- i) mod / *mode*,
- ii) min / *mean*
- iii) median bagi setiap perwakilan data yang berikut  
*median for each of the following data representations*

[4 markah/marks]

Jawapan/Answer :

(c)(i)

(ii)

(iii)

## KERTAS SOALAN TAMAT

SET PENGUKUHAN

UNIT SAINS DAN MATEMATIK, SEKTOR PEMBELAJARAN, JABATAN PENDIDIKAN NEGERI MELAKA