

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

**SULIT**  
**1449/2**  
**Matematik**  
**Kertas 2**  
**Nov 2021**  
2 $\frac{1}{2}$  jam

**PEPERIKSAAN PERCUBAAN SPM**  
**MATEMATIK**  
**KERTAS 2**  
**(1449/2)**

**Dua jam tiga puluh minit**

**JANGAN BUKA KERTAS SOALANINI SEHINGGA DIBERITAHU**

1. Kertas soalan ini mengandungi tiga bahagian : **Bahagian A, Bahagian B dan Bahagian C.**  
*This question paper consists of three sections: Section A, Section B and Section C.*
2. Jawab **semua** soalan dalam **Bahagian A dan Bahagian B** dan hanya **satu** soalan daripada **Bahagian C**.  
*Answer all question in Section A and Section B and only one question from Section C.*
3. Tulis jawapan anda pada ruang yang disediakan dalam kertas soalan ini.  
*Write your answer in the answer space provided in the question paper.*
4. Tunjukkan kerja mengira anda. Ini boleh membantu anda untuk mendapatkan markah.  
*Show your working. It may help you to get marks.*
5. Anda dikehendaki menggunakan kalkulator saintifik yang tidak boleh diprogramkan.  
*You may use a non-programmable scientific calculator.*

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

**RUMUS MATEMATIK**  
**MATHEMATICAL FORMULAE**

Rumus-rumus berikut boleh membantu anda menjawab soalan. Simbol-simbol yang diberi adalah yang biasa digunakan.

*The following formulae may be helpful in answering the questions. The symbols given are the ones commonly used.*

**NOMBOR DAN OPERASI**  
**NUMBERS AND OPERATIONS**

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

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

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

$$4 \quad a^{\frac{m}{n}} = (a^m)^{\frac{1}{n}}$$

$$5 \quad \text{Faedah mudah / Simple interest, } I = Prt$$

$$6 \quad \text{Faedah kompaun / Compound interest, } MV = P \left(1 + \frac{r}{n}\right)^{nt}$$

$$7 \quad \text{Jumlah bayaran balik / Total repayment, } A = P + Prt$$

**PERKAITAN DAN ALGEBRA**  
**RELATIONSHIP AND ALGEBRA**

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

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

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

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

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

$$5 \quad m = -\frac{\text{pintasan-}y}{\text{pintasan-}x}$$

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

$$6 \quad A^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$$

**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  $= \pi d = 2\pi r$   
*Circumference of circle*  $= \pi d = 2\pi r$
- 4 Luas bulatan  $= \pi r^2$   
*Area of circle*  $= \pi r^2$
- 5  $\frac{\text{Panjang lengkok}}{2\pi r} = \frac{\theta}{360^\circ}$   
 $\frac{\text{Arc length}}{2\pi r} = \frac{\theta}{360^\circ}$
- 6  $\frac{\text{Luas sektor}}{\pi r^2} = \frac{\theta}{360^\circ}$   
 $\frac{\text{Area of sector}}{\pi r^2} = \frac{\theta}{360^\circ}$
- 7 Luas lelayang  $= \frac{1}{2} \times \text{hasil darab panjang dua pepenjuru}$   
*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*  $= \frac{1}{2} \times \text{sum of two parallel sides} \times \text{height}$
- 9 Luas permukaan silinder  $= 2\pi r^2 + 2\pi r h$   
*Surface area of cylinder*  $= 2\pi r^2 + 2\pi r h$
- 10 Luas permukaan kon  $= \pi r^2 + \pi r s$   
*Surface area of cone*  $= \pi r^2 + \pi r s$
- 11 Luas permukaan sfera  $= 4\pi r^2$   
*Surface area of sphere*  $= 4\pi r^2$
- 12 Isi padu prisma = luas keratan rentas  $\times$  tinggi  
*Volume of prism*  $= \text{area of cross section} \times \text{height}$

13 Isi padu silinder =  $\pi j^2 t$

$$\text{Volume of cylinder} = \pi r^2 h$$

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

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

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

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

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

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

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

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

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

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

### **STATISTIK DAN KEBARANGKALIAN**

### **STATISTICS AND PROBABILITY**

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

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

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

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

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

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

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

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

**Bahagian A / Section A**  
[ 40 markah / marks ]

Jawab **semua** soalan dalam bahagian ini.  
*Answer all questions in this section.*

- 1 Gambar rajah Venn di ruang jawapan menunjukkan set  $A$ , set  $B$  dan set  $C$  dengan keadaan set semesta,  $\xi = A \cup B \cup C$ .  
*The Venn diagram in the answer space shows set  $A$ , set  $B$  and set  $C$  where the universal set,  $\xi = A \cup B \cup C$ .*

For  
Examiner's  
Use

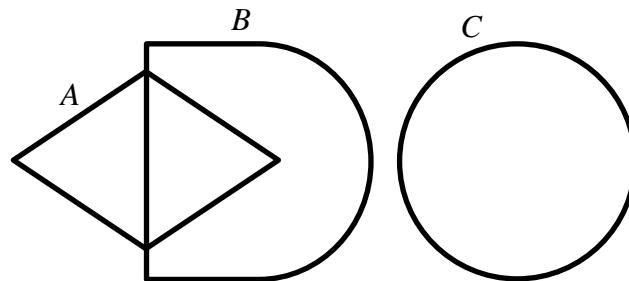
Pada rajah di ruang jawapan, lorekkan set  
*On the diagram provided in the answer space, shade the set*

- (a)  $B'$   
(b)  $(A' \cap B) \cup C$

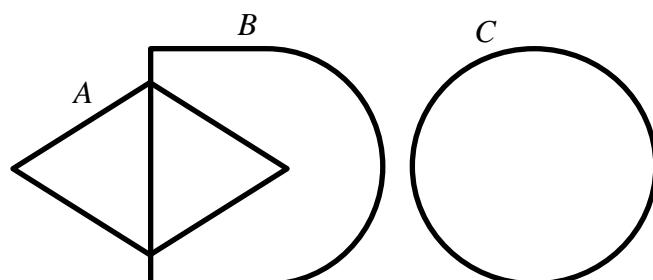
[ 3 markah /marks ]

Jawapan / Answer

(a)



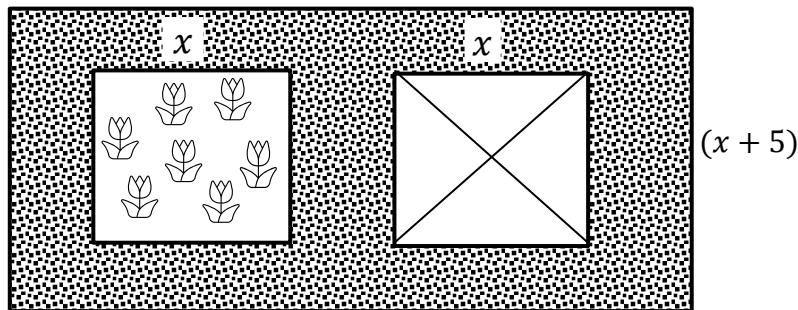
(b)



- 2 Rajah 1 menunjukkan sebuah tanah yang berbentuk segi empat tepat di hadapan rumah Encik Azis. Dia ingin membina sebuah gazebo (pondok rehat) dan sebuah taman dengan memperuntukkan dua kawasan yang berbentuk segi empat sama dengan sisi  $x$  m. Jumlah luas keseluruhan tanah itu ialah  $56 \text{ m}^2$ .

*Diagram 1 shows a rectangular piece of land in front of Encik Azis's house. He wants to build a gazebo (resting hut) and a garden by allocating two square regions with side  $x$  m. The total area of the land is  $56 \text{ m}^2$ .*

$$(3x + 2)$$



Rajah 1 / Diagram 1

Hitung nilai  $x$  dan seterusnya cari luas, dalam  $\text{m}^2$ , tanah yang **tidak** dilitupi oleh dua kawasan berbentuk segi empat sama itu.

*Calculate the value of  $x$  and hence find the area, in  $\text{m}^2$ , of it's land that is **not** covered by the two square regions.*

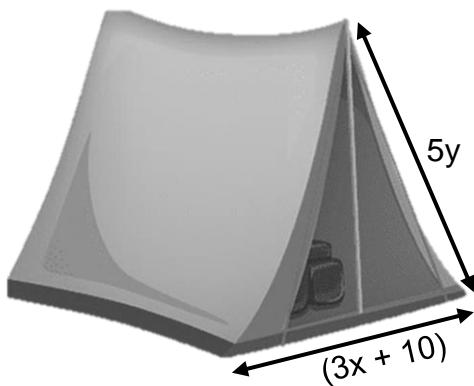
[ 4 markah /marks ]

Jawapan / Answer

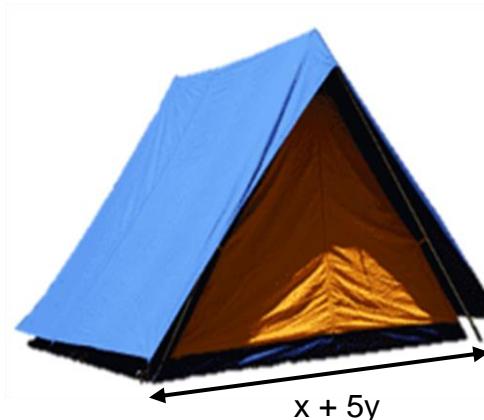
- 3 Penyelesaian dengan **kaedah matriks tidak dibenarkan** untuk menjawab soalan ini.  
*Solution by matrix method is not allowed to answer this question.*

Rajah 2 menunjukkan dua buah khemah. Pintu masuk khemah A dan khemah B masing-masing berbentuk segi tiga sama kaki dan segi tiga sama sisi. Diberi bahawa perimeter pintu masuk khemah A ialah 350 cm dan perimeter pintu masuk khemah B ialah 480 cm.

*Diagram 2 shows two tents. The entrances of tent A and tent B are in the shape of an isosceles triangle and an equilateral triangle, respectively. Given that the perimeter of the entrance of tent A is 350 cm and the perimeter of the entrance of tent B is 480 cm.*



Khemah A  
Tent A



Khemah B  
Tent B

Rajah 2 / Diagram 2

Hitung nilai  $y$ .

*Calculate the value of  $y$ .*

[ 3 markah /marks ]

Jawapan / Answer

- 4 Encik Aaron membeli sebuah kereta bernilai RM 135 000. Beliau membuat bayaran pendahuluan sebanyak 12% dan bakinya dibiayai dengan pinjaman dari Bank Y untuk tempoh 9 tahun dengan kadar faedah mudah 2.75% setahun.

Hitung bayaran ansuran bulanan, dalam *RM*, yang perlu dibayar oleh Encik Aaron.

*Encik Aaron buys a car worth RM 135 000. He pays 12% down payment and the balance is financed with a loan from Bank Y for a period of 9 years with a simple interest rate of 2.75%.*

*Calculate the monthly amount installment, in RM, payable by Encik Aaron.*

[ 4 markah /marks ]

Jawapan / Answer

- 5 Jadual 1 menunjukkan pelan kewangan Encik Azmi pada bulan Oktober.  
*Table 1 shows the financial plan of Encik Azmi in October.*

*For  
Examiner's  
Use*

<b>Pelan Kewangan <i>Financial Plan</i></b>	<b>RM</b>
Gaji bersih / <i>Net salary</i>	5 800
Pendapatan pasif / <i>Passive Income</i>	700
<b>Jumlah pendapatan / <i>Total Income</i></b>	<b>6 500</b>
<b>Tolak perbelanjaan tetap bulanan / <i>Minus monthly fixed expenses</i></b>	
Ansuran pinjaman perumahan / <i>Housing loan installment</i>	1 050
Ansuran kereta / <i>Car installment</i>	850
Insurans keluarga / <i>Family insurance</i>	400
<b>Jumlah perbelanjaan tetap bulanan / <i>Total monthly fixed expenses</i></b>	<b>2 300</b>
<b>Tolak perbelanjaan tidak tetap bulanan / <i>Minus monthly variable expenses</i></b>	
Barangan dapur / <i>Groceries</i>	1 300
Belanja petrol / <i>Petrol expenses</i>	300
Bil utiliti / <i>Utility bills</i>	550
Pendidikan anak-anak / <i>Children's education</i>	600
Melancong / <i>Travel</i>	700
<b>Jumlah perbelanjaan tidak tetap bulanan / <i>Total monthly variable expenses</i></b>	<b>3 450</b>
<b>Pendapatan lebihan / kurangan <i>Surplus of income / Deficit</i></b>	<b>X</b>

Jadual 1 / *Table 1*

*For  
Examiner's  
Use*

- (a) Hitung, dalam *RM*, nilai X.  
*Calculate, in RM, the value of X.*
- (b) Encik Azmi ingin membeli sebuah motosikal baharu yang berharga *RM 8 000* dalam masa setengah tahun.  
*Encik Azmi wants to buy a new motorcycle with the price of RM 8 000 in half year.*  
Berdasarkan pelan kewangan tersebut,  
*Based on the financial plan,*
- (i) Bolehkah Encik Azmi mencapai matlamat kewangan itu? Beri alasan anda.  
*Can Encik Azmi achieve the financial goal? Give your reason.*
- (ii) Cadangkan satu cara agar Encik Azmi dapat meningkatkan pendapatannya.  
*Suggest one way that Encik Azmi can increase his income.*

[ 4 markah /marks ]

Jawapan / Answer

(a)

(b) (i)

(ii)

- 6 (a) Tulis kontrapositif bagi pernyataan berikut. Seterusnya, nyatakan sama ada kontrapositif tersebut adalah benar atau palsu.

*Write the contrapositive of the following statement. Hence, determine whether the contrapositive is true or false.*

Jika 64 ialah gandaan bagi 4, maka 64 ialah gandaan bagi 12.

*If 64 is a multiple of 4, then 64 is a multiple of 12.*

- (b) Lengkapkan Premis 2 untuk membentuk hujah deduktif yang sah dan munasabah.  
*Complete Premise 2 to form a valid and sound deductive argument.*

Premis 1 : Jika  $n = 1$ , maka  $y = x^n + 4$  ialah persamaan linear dalam dua pemboleh ubah.

*Premise 1 : If  $n = 1$ , then  $y = x^n + 4$  is a linear equation in two variables.*

Premis 2 : .....

*Premise 2 : .....*

Kesimpulan :  $n \neq 1$

*Conclusión :  $n \neq 1$*

- (c) Tulis akas bagi implikasi yang berikut dan tentukan nilai kebenarannya.

*Write the converse for the following implication and determine the truth value.*

Jika hasil tambah sudut pedalaman sebuah poligon ialah  $360^\circ$ , maka poligon itu ialah sebuah sisi empat.

*If the sum of interior angles is  $360^\circ$ , then the polygon is a quadrilateral.*

[ 5 markah /marks ]

Jawapan / Answer

(a) .....

.....

.....

(b) Premis 2 / Premise 2 :

.....

.....

(c) .....

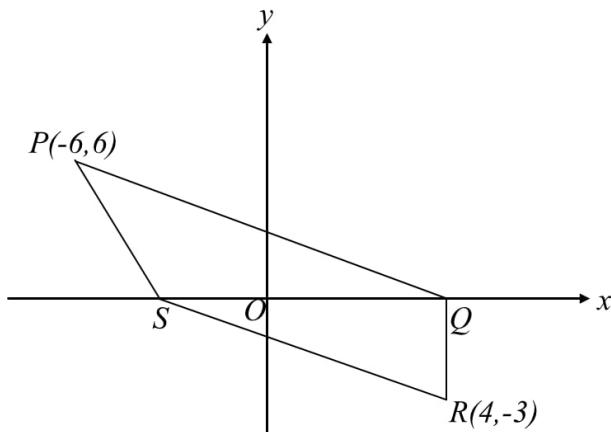
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- 7 Rajah 3 menunjukkan sebuah trapezium  $PQRS$  dilukis pada suatu satah Cartes. Titik  $O$  ialah asalan. Garis lurus  $QR$  selari dengan paksi- $y$ . Titik  $S$  dan titik  $Q$  berada pada paksi- $x$ .

*Diagram 3 shows a trapezium PQRS drawn on a Cartesian plane. Point O is the origin. Straight line QR is parallel to the y-axis. The points S and Q lie on the x-axis.*



Rajah 3 / Diagram 3

Cari  
*Find,*

- (a) persamaan bagi garis lurus  $PQ$ ,  
*the equation of the straight line PQ,*
- (b) pintasan- $x$  bagi garis lurus  $PQ$ .  
*the x-intercept of the straight line PQ.*

[ 4 markah /marks ]

Jawapan / Answer

(a)

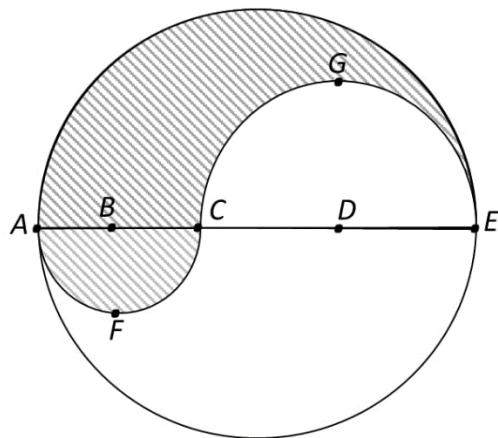
(b)

- 8 Dalam Rajah 4, garis lurus  $ABCDE$  ialah diameter bulatan berjejari 6 cm. Panjang  $AC = CD = DE$ .  $ABCF$  dan  $CDEG$  ialah dua semibulatan masing-masing berpusat di  $B$  dan  $D$ .

*In Diagram 4, straight line  $ABCDE$  is a diameter of a circle with radius 6 cm.*

*Length  $AC = CD = DE$ .  $ABCF$  and  $CDEG$  are two semicircles with centre  $B$  and  $D$  respectively.*

(Guna/Use  $\pi = \frac{22}{7}$ )



Rajah 4 / Diagram 4

Hitung,

Calculate,

- (a) perimeter, dalam cm, kawasan berlorek.  
*the perimeter, in cm, of the shaded region.*
- (b) luas, dalam  $\text{cm}^2$ , semibulatan  $ABCF$ .  
*the area, in  $\text{cm}^2$ , the semicircle  $ABCF$ .*

[ 5 markah /marks ]

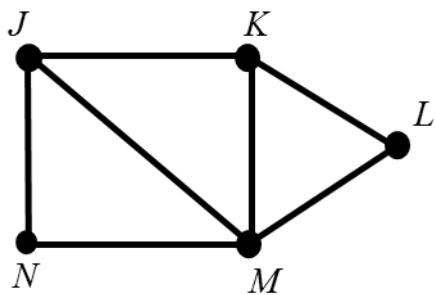
*For  
Examiner's  
Use*

Jawapan / Answer

(a)

(b)

- 9 Rajah 5 menunjukkan suatu graf.  
*Diagram 5 shows a graph.*



Rajah 5 / Diagram 5

Berdasarkan graf, senarai dan nyatakan bilangan  
*Based on the graph, list and state the number of*

- (a) bucu  
*vértices*  
(b) tepi  
*edges*

[ 4 markah /marks ]

Jawapan / Answer

(a)

(b)

- 10 SMK Murni telah mengadakan jamuan akhir tahun. Dalam jamuan itu, tiga hidangan telah disediakan iaitu mee kari, laksa dan karipap. Cikgu Umi dan Teacher Jah telah memilih mee kari sebagai hidangan utama mereka. Kebarangkalian Cikgu Umi ( $U$ ) dan Teacher Jah ( $J$ ) makan mee kari masing-masing ialah  $\frac{5}{9}$  dan  $\frac{2}{5}$ .

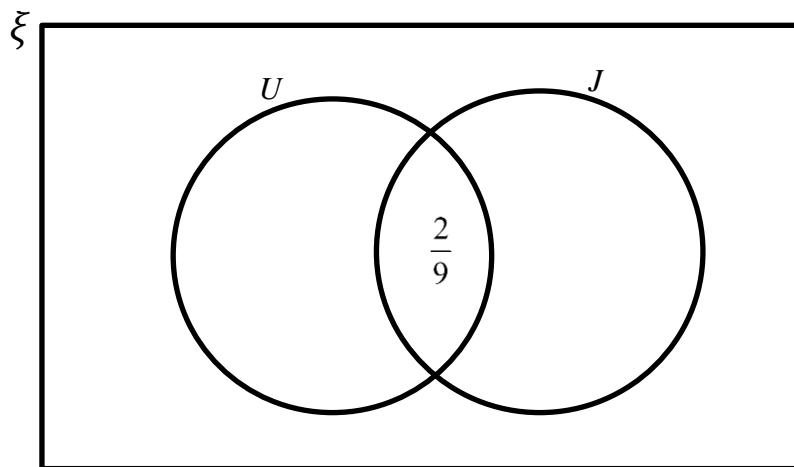
Lengkapkan gambar rajah Venn di ruang jawapan. Seterusnya, cari kebarangkalian Cikgu Umi dan Teacher Jah **tidak** makan mee kari.

*SMK Murni has held a year-end banquet. During the banquet, three dishes were prepared such as curry noodles, laksa and curry puff. Cikgu Umi and Teacher Jah have chosen curry noodles as their main dish. The probabilities of Cikgu Umi ( $U$ ) and Teacher Jah ( $J$ ) eating curry noodles are  $\frac{5}{9}$  and  $\frac{2}{5}$  respectively.*

*Complete the Venn diagram in the answer space. Hence, find the probability that Cikgu Umi and Teacher Jah do **not** eat curry noodles.*

[ 4 markah /marks ]

Jawapan / Answer



**Bahagian B / Section B**  
[ 45 markah / marks ]

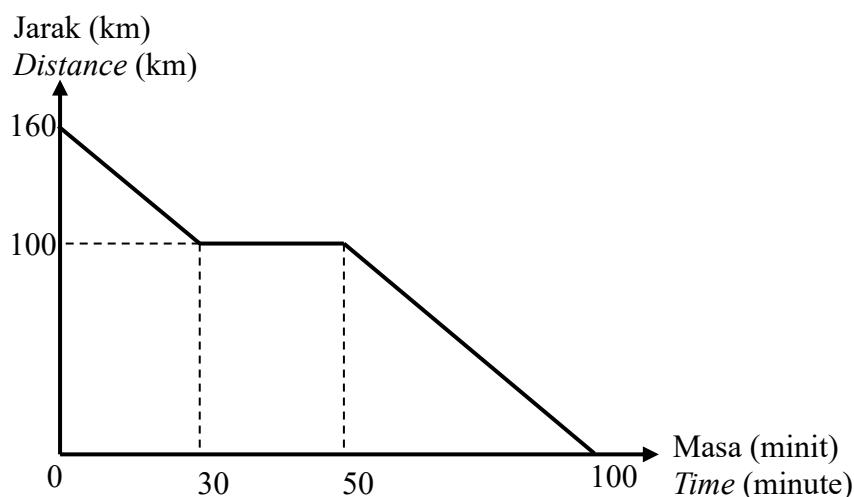
Jawab **semua** soalan dalam bahagian ini.

*Answer all questions in this section.*

- 11 Rajah 6 menunjukkan graf jarak-masa bagi perjalanan sebuah kereta dari bandar A ke bandar C melalui bandar B dalam tempoh 100 minit.

*Diagram 6 shows the distance-time graph for the journey of a car from town A to town C through town B in 100 minutes.*

For  
Examiner's  
Use



Rajah 6 / Diagram 6

- (a) (i) Nyatakan tempoh masa, dalam minit, ketika kereta itu berhenti.  
*State the duration of time, in minutes, during which the car is stationary.*
- (ii) Nyatakan jarak bandar A dari bandar C.  
*State the distance town A from town C.*
- (b) Hitung laju purata, dalam  $\text{kmj}^{-1}$ , bagi keseluruhan perjalanan.  
*Calculate the average speed, in  $\text{kmj}^{-1}$ , of the whole journey.*
- (c) Huraikan perjalanan kereta itu dalam 30 minit pertama.  
*Describe the motion of the car in the first 30 minutes.*

[ 8 markah /marks ]

*For  
Examiner's  
Use*

**Jawapan / Answer**

(a) (i)

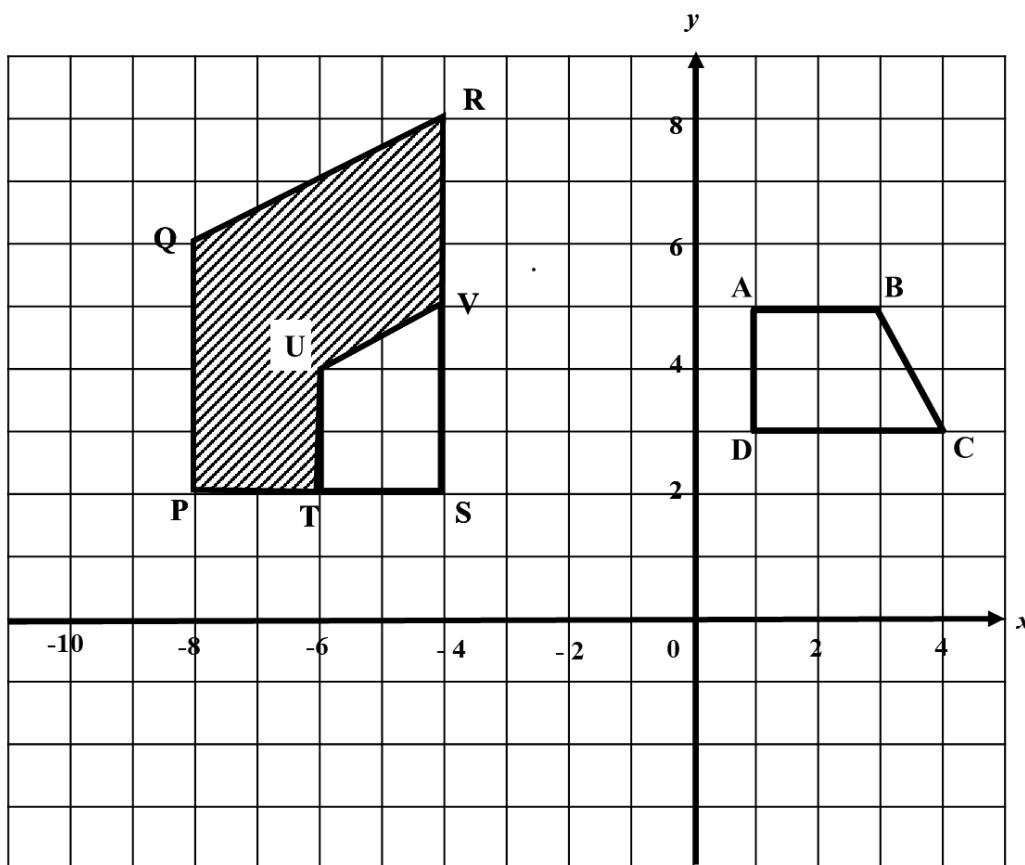
(ii)

(b)

(c)

- 12 (a) Rajah 7 menunjukkan tiga sisi empat  $ABCD$ ,  $PQRS$  dan  $TUVS$ , dilukis pada satah Cartesian.

*Diagram 7 shows three quadrilaterals  $ABCD$ ,  $PQRS$  and  $TUVS$ , drawn on Cartesian plane.*



Rajah 7 / Diagram 7

$ABCD$  ialah imej bagi  $PQRS$  di bawah gabungan transformasi  $YX$ .

$ABCD$  is the image of  $PQRS$  under a combined transformation  $YX$ .

Huraikan selengkapnya transformasi:

*Describe in full the transformation of:*

- (i)  $X$
- (ii)  $Y$

[6 markah /marks]

- (b) Diberi luas kawasan berlorek ialah  $120 \text{ cm}^2$ . Hitung luas, dalam  $\text{cm}^2$ , sisi empat  $ABCD$ .

*Given that the area of shaded region is  $120 \text{ cm}^2$ . Calculate the area, in  $\text{cm}^2$ , of the quadrilateral  $ABCD$ .*

[3 markah /marks]

*For  
Examiner's  
Use*

**Jawapan / Answer**(a) (i)  $X$ :(ii)  $Y$ :

(b)

- 13 Encik Mahmud menjual  $x$  ekor lembu dan  $y$  ekor kambing pada bulan lepas. Maklumat di bawah berkaitan dengan jualan Encik Mahmud.

*Encik Mahmud sold  $x$  cows and  $y$  goats last month. The information below is related to both animal sells by Encik Mahmud.*

- (i) Jumlah lembu dan kambing yang dijual selebih-lebihnya 60 ekor.  
*The total number of cows and goats sold at most 60.*
- (ii) Bilangan minimum lembu ialah 15 ekor.  
*The minimum number of cows is 15.*
- (iii) Bilangan minimum kambing ialah 5 ekor.  
*The minimum number of goats is 5.*

Berdasarkan maklumat di atas,

*Based on the above information,*

- (a) Tulis ketiga-tiga ketaksamaan linear, selain  $x \geq 0$  and  $y \geq 0$ , yang mewakili situasi di atas.

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

[ 3 markah /marks ]

- (b) Untuk ceraian soalan ini, gunakan kertas graf yang disediakan di ruang jawapan.  
*For this part of the question, use the graph paper provided in the answer space.*

Dengan menggunakan skala 2 cm kepada 10 unit pada kedua-dua paksi, lukis dan lorek rantau yang memuaskan sistem ketaksamaan linear yang dinyatakan di 13 (a).

*Using a scale of 2 cm to 10 units on both axes, draw and shade the region that satisfies the linear inequalities system stated in 13 (a).*

[ 4 markah /marks ]

- (c) Daripada graf, tentukan bilangan minimum dan maksimum lembu yang dijual apabila dia menjual 10 ekor kambing.

*From the graph, determine the minimum and maximum number of the cows when he sold 10 goats.*

[ 2 markah /marks ]

*For  
Examiner's  
Use*

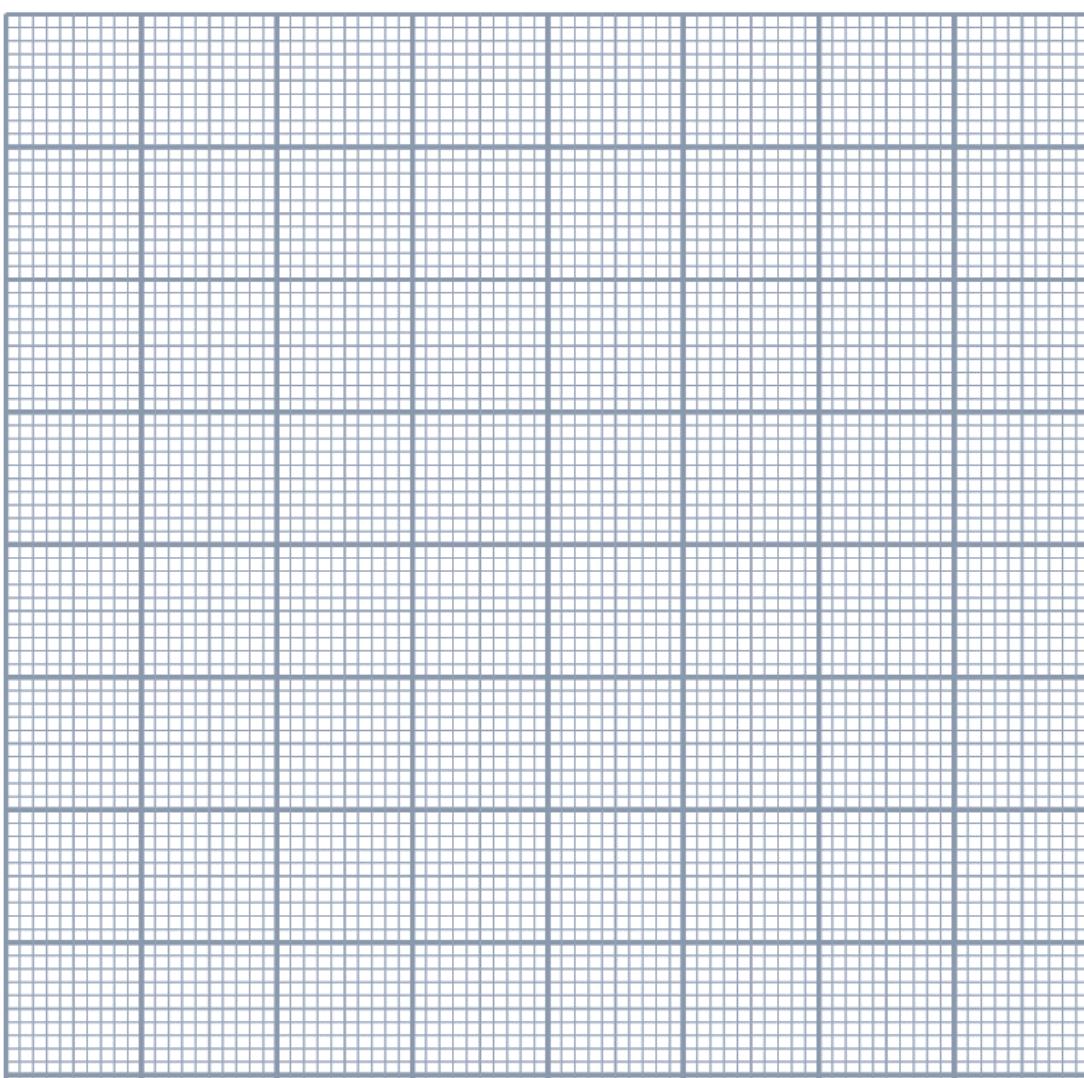
Jawapan / Answer

(a) (i)

(ii)

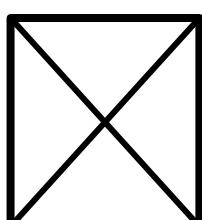
(iii)

(b)

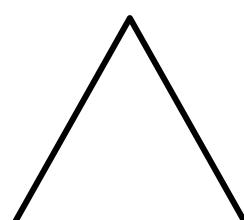
A large grid of squares, likely for drawing or plotting, consisting of 10 columns and 10 rows of small squares.

(c)

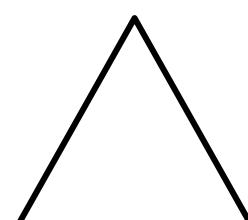
- 14 (a) Rajah 8.1 menunjukkan pelan dan dongakan bagi suatu pepejal geometri.  
*Diagram 8.1 shows the plan and elevation of a solid geometry.*



Pelan  
*Plan*



Dongakan hadapan  
*Front elevation*



Dongakan sisi  
*Side elevation*

For  
Examiner's  
Use

Rajah 8.1 / Diagram 8.1

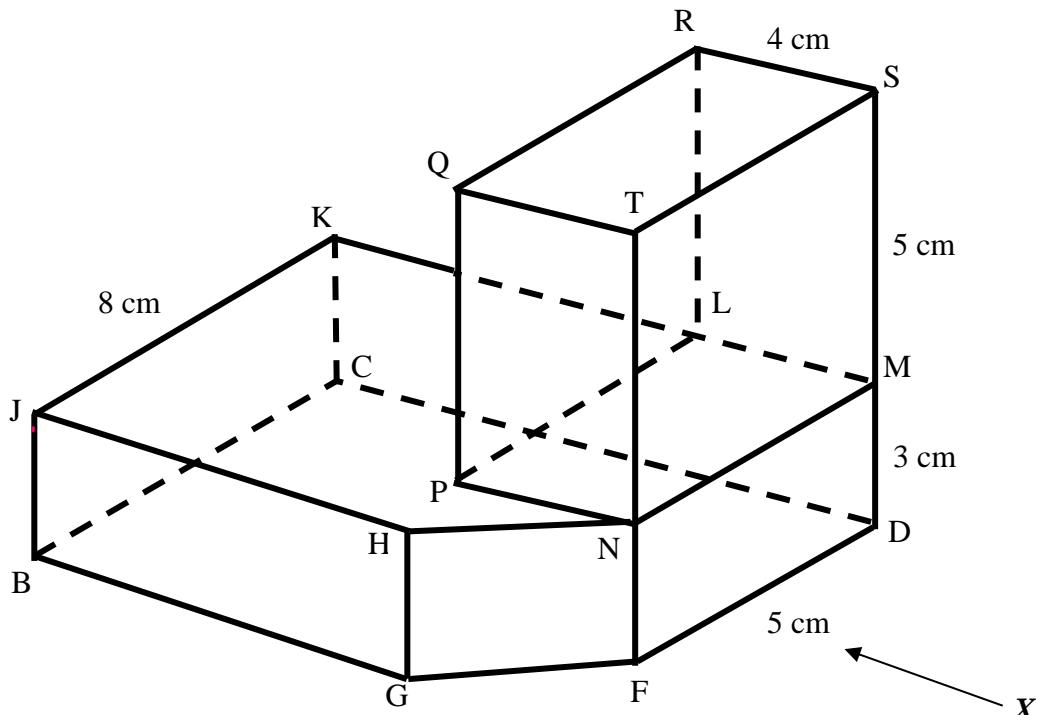
Namakan pepejal geometri itu.  
*Name the solid geometry.*

[ 1 markah /mark ]

- 14 (b) Anda **tidak** dibenarkan menggunakan kertas graf untuk menjawab soalan ini.  
*You are not allowed to use graph paper to answer this question.*

Rajah 8.2 menunjukkan gabungan pepejal yang terdiri daripada sebuah prisma dengan tapak  $BCDFG$  terletak pada satah mengufuk dan sebuah kuboid pada satah  $LMNP$ . Diberi  $JK = HL$ ,  $CD = 10\text{ cm}$ ,  $LM = PN = QT = RS = 4\text{ cm}$  dan  $DF = MN = LP = RQ = ST$ .

*Diagram 8.2 shows a composite solid consisting of a prism with the base of  $BCDFG$  located on the horizontal plane and a cuboid on the  $LMNP$  plane. Given  $JK = HL$ ,  $CD = 10\text{ cm}$ ,  $LM = PN = QT = RS = 4\text{ cm}$  and  $DF = MN = LP = RQ = ST$ .*



Rajah 8.2 / Diagram 8.2

Lukis dengan skala penuh,  
*Draw to full scale,*

- (i) pelan gabungan pepejal itu,  
*the plan of the composite solid,*

[ 4 markah /marks ]

- (ii) dongakan gabungan pepejal pada satah mencancang yang selari dengan *DF*  
sebagaimana dilihat dari *X*.

*the elevation of the composite solid on a vertical plane parallel to DF as viewed from X.*

[ 4 markah /marks ]

**Jawapan / Answer**

14 (a) .....

(b) (i)

14 (b) (ii)

*For  
Examiner's  
Use*

- 15 Rajah 9 menunjukkan jisim bagi 30 murid Tingkatan 5, dalam kg, yang dibundarkan kepada nombor bulat.

*Diagram 9 shows the mass of 30 Form 5 pupils, in kg, rounded to a whole number.*

45	52	55	45	48	50	52	63	51	52
60	65	53	55	57	56	40	48	56	44
56	57	48	50	60	56	52	57	55	46

**Rajah 9 / Diagram 9**

- (a) Berdasarkan Rajah 9, lengkapkan Jadual 2 di ruang jawapan.  
*Based on Diagram 9, complete Table 2 in the answer space.*

[ 5 markah /marks ]

- (b) Untuk ceraian soalan ini, gunakan kertas graf yang disediakan di halaman 28.  
 Anda boleh menggunakan pembaris fleksibel.

*For this part of the question, use graph paper provided on page 28.  
 You may use a flexible curve ruler.*

Dengan menggunakan skala 2 cm kepada 5 kg pada paksi mengufuk dan 2 cm kepada 1 orang murid pada paksi mencancang, lukis satu histogram bagi data tersebut.

*By using a scale of 2 cm to 5 kg on the horizontal axis and 2 cm to 1 student on the vertical axis, draw a histogram for the data.*

[ 4 markah /marks ]

- (c) Dari graf di 15(b), nyatakan bentuk taburan graf itu.

*From graph 15(b), state the shape of the graph distribution.*

[ 1 markah /marks ]

## Jawapan / Answer

For  
Examiner's  
Use

(a)

Jisim (kg) <i>Mass (kg)</i>	Sempadan bawah <i>Lower boundary</i>	Sempadan atas <i>Upper boundary</i>	Kekerapan <i>Frequency</i>
40 - 44			

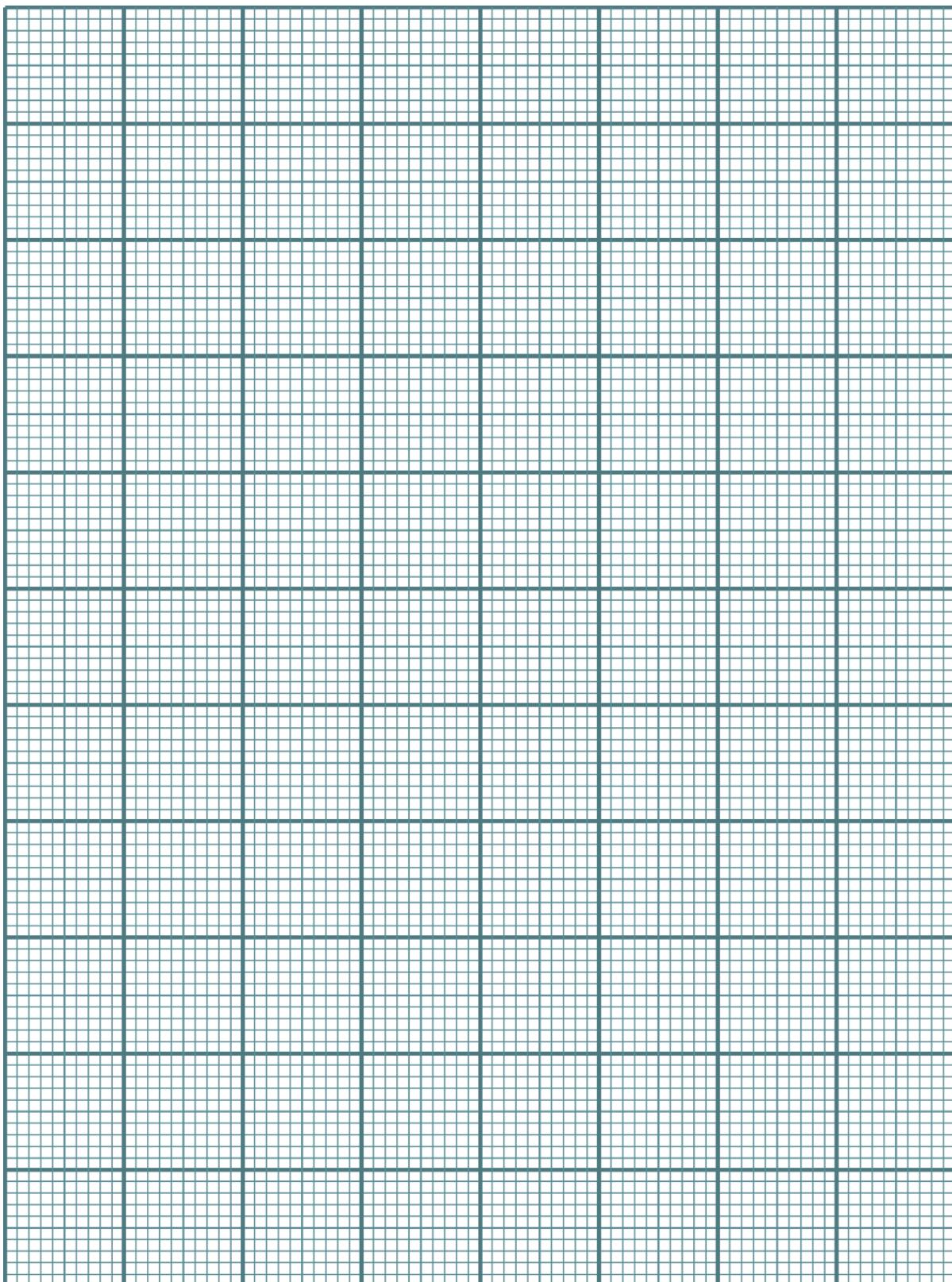
Jadual 2 / Table 2

- (b) Rujuk graf di halaman **28**.  
*Refer graph on page 28.*

(c)

**Graf untuk Soalan 15(b)**  
*Graph for Question 15(b)*

*For  
Examiner's  
Use*



**Bahagian C / Section C**  
[ 15 markah / marks ]

Pilih **satu** soalan dalam bahagian ini.  
*Answer one question in this section.*

- 16 (a) Hamid merupakan seorang pengusaha tanaman pokok cili. Jadual 3 menunjukkan bilangan pokok cili yang ditanam olehnya dalam tempoh empat bulan pada tahun 2020. Diberi jumlah keseluruhan pokok cili yang ditanam ialah 8415 batang.

For  
Examiner's  
Use

*Hamid is a chilli planter.*

*Table 3 shows the number of chilli trees planted by him in a period of four months in 2020. Given the total number of chilli trees planted is 8415.*

Bulan Month	Bilangan pokok cili Number of chili trees
Mac / March	11210 <sub>5</sub>
April	27628
Mei / May	6441 <sub>7</sub>
Jun / June	<i>Q</i>

Jadual 3 /Table 3

Hitung nilai *Q*, bilangan pokok cili yang ditanam pada bulan Jun. Berikan jawapan anda dalam asas 10.

*Calculate the value of *Q*, the number of chilli trees planted in June. Give your answer in base 10.*

[ 4 markah /marks ]

Jawapan / Answer

(a)

- 16 (b) Hamid menerima tempahan untuk membekalkan cili-cilinya kepada dua buah restoran. Jadual 4 menunjukkan jumlah jisim cili, dalam kg, yang ditempah oleh restoran-restoran tersebut.

*Hamid received an order to supply his chillies to two restaurants. Table 4 shows the total mass of chillies, in kg, ordered by these restaurants.*

Restoran <i>Restaurant</i>	Cili Merah <i>Red chillies</i>	Cili Hijau <i>Green chillies</i>	Harga (RM) <i>Price (RM)</i>
Seri	40	30	780
Mawar	10	20	360

Jadual 4 / Table 4

Dengan menggunakan **kaedah penggantian atau penghapusan**, hitung harga bagi 1 kg cili merah dan 1 kg cili hijau.

*Using the **substitution or elimination method**, calculate the price for 1 kg of red chilli and 1 kg of green chilli.*

[ 6 markah /marks ]

Jawapan / Answer

(b)

- 16 (c) Pada bulan Mei, Hamid memperoleh pendapatan bersih sebanyak RM 4500 hasil daripada jualan cili-cilinya. Dia juga memperoleh pendapatan pasif sebanyak RM 1 500. Perbelanjaan tetap dan perbelanjaan tidak tetap beliau pada bulan tersebut masing-masing ialah RM 680 dan RM 1800.

Pada bulan berikutnya, pendapatan aktif Hamid bertambah sebanyak 10%. Namun pendapatan pasifnya berkurangan sebanyak 50%. Perbelanjaan tidak tetapnya pula bertambah sebanyak 3 kali ganda kerana sambutan Hari Raya Aidilfitri, manakala perbelanjaan tetapnya adalah sama seperti bulan Mei.

Berdasarkan penyataan, jelaskan aliran tunai Hamid dan berikan justifikasi anda.

*In May, Hamid earned a net income of RM 4500 from the sale of his chillies. He also earned a passive income of RM 1 500. His fixed and non-fixed expenses for the month were RM 680 and RM 1800 respectively.*

*In the following month, Hamid's active income increased by 10%. However, his passive income decreased by 50%. His non-fixed expenses increased by 3 times due to Hari Raya Aidilfitri celebration, while his fixed expenses stayed the same. Based on the statement, explain Hamid's cash flow and give your justification.*

[ 5 markah /marks ]

Jawapan / Answer

(c)

- 17 (a) Kamal memiliki sebidang tanah. Dia bercadang menternak kambing di atas tanah tersebut. Dengan wang simpanan sebanyak RM 8000, Kamal menggunakan 25% dari wang simpanan itu untuk membeli 6 ekor kambing betina dan kambing jantan. Harga seekor kambing betina dan kambing jantan masing-masing ialah RM 300 dan RM 400.

*Kamal owns a piece of land. He plans to raise goats on it's land. With a savings of RM 8000, Kamal uses 25% of the savings to buy 6 female and male goats. The price of a female goat and male goat are RM 300 and RM 400 respectively.*

Dengan menggunakan **kaedah matriks**, nyatakan bilangan kambing betina dan kambing jantan yang dapat dibeli oleh Kamal.

*Using the **matrix method**, state the number of female and male goats that Kamal can buy.*

[ 6 markah /marks ]

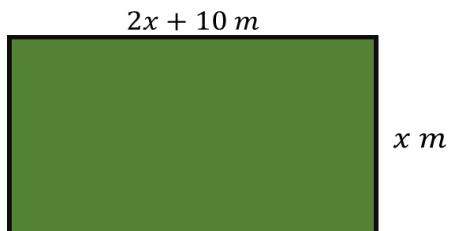
Jawapan / Answer

(a)

- 17 (b) Rajah 10.1 menunjukkan tanah Kamal seluas  $3600 \text{ m}^2$ . Dia menggunakan baki wang simpanan untuk membina pagar di tanah itu.

For  
Examiner's  
Use

*Diagram 10.1 shows Kamal's land with the area of  $3600 \text{ m}^2$ . He used the balance of his saving to fence the land.*



Rajah 10.1 / Diagram 10.1

Hitungkan kos pembinaan pagar tersebut sekiranya harga bagi satu meter pagar ialah RM 30. Adakah baki wangnya itu mencukupi? Berikan justifikasi anda.

*Calculate the cost of fencing the land if the price of fence per meter is RM 30.  
Is the remaining saving enough? Give your justification.*

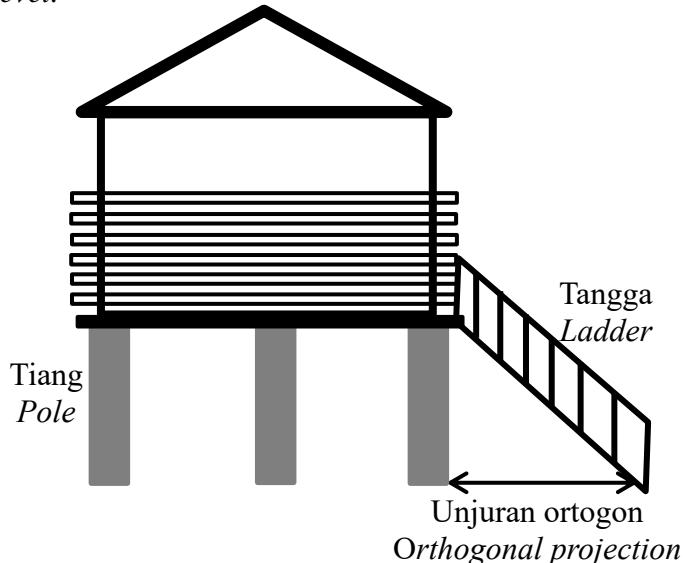
[ 6 markah /marks ]

Jawapan / Answer

(b)

- 17 (c) Rajah 10.2 menunjukkan lakaran kandang kambing yang akan dibina oleh Kamal. Tinggi tiang ialah 2 meter. Dia ingin membina tangga kandang itu dengan sudut  $45^\circ$  dari aras tanah.

*Diagram 10.2 shows the sketch of goat shelter that will be built by Kamal. The height of the pole is 2 meters. He wants to build the ladder with an angle of  $45^\circ$  from the ground level.*



Rajah 10.2 / Diagram 10.2

- (i) Hitung panjang, dalam m, tangga itu. Berikan jawapan betul kepada 2 tempat perpuluhan.

*Calculate the length, in m, of the ladder. State the answer correct in 2 decimal places.*

- (ii) Nyatakan panjang, dalam m, unjuran ortogon tangga itu.

*State the length, in m, of the orthogonal projection of the ladder.*

[ 3 markah /marks ]

Jawapan / Answer

(c) (i)

(ii)

**KERTAS SOALAN TAMAT**  
**END OF QUESTION PAPER**