

NAMA: TINGKATAN:

SULIT
1449/2
Matematik
Kertas 2
Nov 2022
 $2\frac{1}{2}$ jam

PEPERIKSAAN PERCUBAAN SPM
MATEMATIK
KERTAS 2
(1449/2)

Dua jam tiga puluh minit

JANGAN BUKA KERTAS SOALAN INI 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.

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

Kertas soalan ini mengandungi 33 halaman bercetak

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 $a^m \times a^n = a^{m+n}$ | 2 $a^m \div a^n = a^{m-n}$ |
| 3 $(a^m)^n = a^{mn}$ | 4 $a^{\frac{m}{n}} = (a^{\frac{1}{n}})^m$ |
| 5 Faedah mudah / <i>Simple interest</i> , $I = Prt$ | |
| 6 Faedah kompaun / <i>Compound interest</i> , $MV = P\left(1 + \frac{r}{n}\right)^{nt}$ | |
| 7 Jumlah bayaran balik / <i>Total repayment</i> , $A = P + Prt$ | |

PERKAITAN DAN ALGEBRA
RELATIONSHIP AND ALGEBRA

- 1 Jarak / *Distance* = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
- 2 Titik tengah / *Midpoint*, $(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
- 3 Laju purata = $\frac{\text{Jumlah jarak}}{\text{Jumlah masa}}$

 $\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$
- 4 $m = \frac{y_2 - y_1}{x_2 - x_1}$
- 5 $m = -\frac{\text{pintasan-y}}{\text{pintasan-x}}$

 $m = -\frac{\text{y-intercept}}{\text{x-intercept}}$
- 6 $A^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$

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 = πr^2
Area of circle = πr^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 layang = $\frac{1}{2} \times$ hasil darab panjang dua pepenjuru
Area of kite = $\frac{1}{2} \times$ *product of two diagonals*
- 8 Luas trapezium = $\frac{1}{2} \times$ hasil tambah dua sisi selari \times tinggi
Area of trapezium = $\frac{1}{2} \times$ *sum of two parallel sides* \times *height*
- 9 Luas permukaan silinder = $2\pi r^2 + 2\pi rh$
Surface area of cylinder = $2\pi r^2 + 2\pi rh$
- 10 Luas permukaan kon = $\pi r^2 + \pi rs$
Surface area of cone = $\pi r^2 + \pi rs$
- 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 = *area of cross section* \times *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 = $\frac{1}{3} \times$ luas tapak \times tinggi
Volume of pyramid = $\frac{1}{3} \times$ base area \times height
- 17 Faktor skala, $k = \frac{PA'}{PA}$
 Scale factor, $k = \frac{PA'}{PA}$
- 18 Luas imej = $k^2 \times$ luas objek
Area of image = $k^2 \times$ 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 Rajah 1 menunjukkan harga bagi tiga jenama jam loceng yang dijual di sebuah kedai.
Diagram 1 shows the prices of three brands of alarm clocks sold in a shop.

*For
Examiner's
Use*

		
Jenama P Brand P RM33 ₆	Jenama Q Brand Q RM1001 ₃	Jenama R Brand R RM25

Rajah 1
Diagram 1

Susun jenama bagi ketiga-tiga jam loceng mengikut harga secara tertib menurun.
Arrange the brands of the three alarm clocks according to the prices in descending order.

[2 markah /marks]

Jawapan / Answer

For
Examiner's
Use

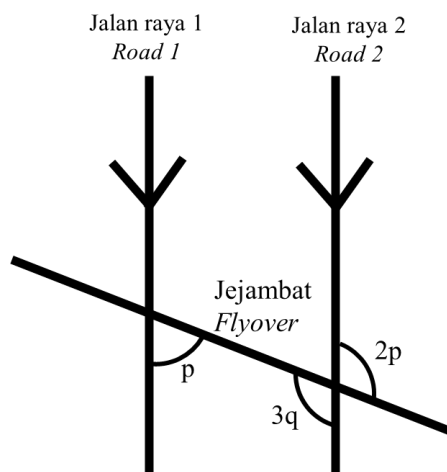
- 2 Anda tidak dibenarkan menggunakan kaedah matriks untuk menyelesaikan masalah ini.
You are not allowed to use the matrix method to solve this problem.

Rajah 2.1 menunjukkan kesesakan lalu lintas di Bandar Melati.

Diagram 2.1 shows traffic jammed at Bandar Melati.



Rajah 2.1
Diagram 2.1



Rajah 2.2
Diagram 2.2

Datuk Bandar bercadang untuk membina jejambat merentasi dua jalan raya tersebut untuk mengurangkan kadar kesesakan lalu lintas. Rajah 2.2 menunjukkan pelan jejambat yang ingin dibina.

Hitung nilai p dan q .

The Mayor plans to build a flyover across the two roads to reduce traffic congestion.

Diagram 2.2 shows the plan of the flyover to be built.

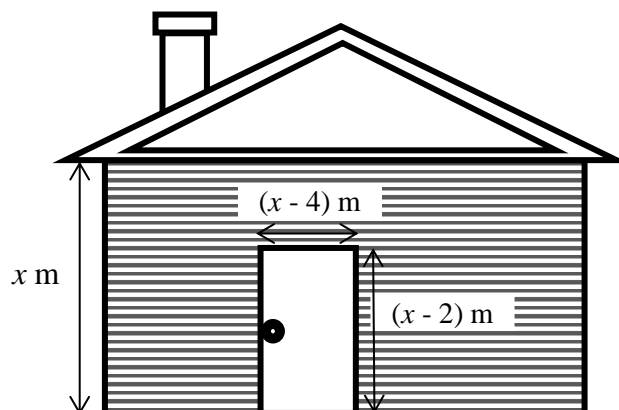
Calculate the value of p and q .

[5 markah /marks]

Jawapan / Answer

- 3 Rajah 3 menunjukkan keratan rentas sebuah rumah.
Diagram 3 shows cross-section of a house.

For
Examiner's
Use



Rajah 3
Diagram 3

Diberi panjang dinding adalah 3 m melebihi 2 kali lebarnya. Luas kawasan berlorek ialah 154 m^2 .

Hitung panjang, dalam m, dinding itu.

Given the length of the wall is 3 m more than twice the height of the wall. The area of the shaded region is 154 m^2 .

Calculate the length, in m, of the wall.

[4 markah /marks]

Jawapan / Answer

For
Examiner's
Use

- 4 Rajah 4 di ruang jawapan menunjukkan sebuah rombus PQRS, dilukis pada grid sisi empat sama bersisi 1 unit. X dan Y ialah titik-titik yang bergerak dalam rajah itu.
Diagram 4 in the answer space shows a rhombus PQRS, drawn on a grid of equal squares with the side of 1 unit. X and Y are points which move in the diagram.

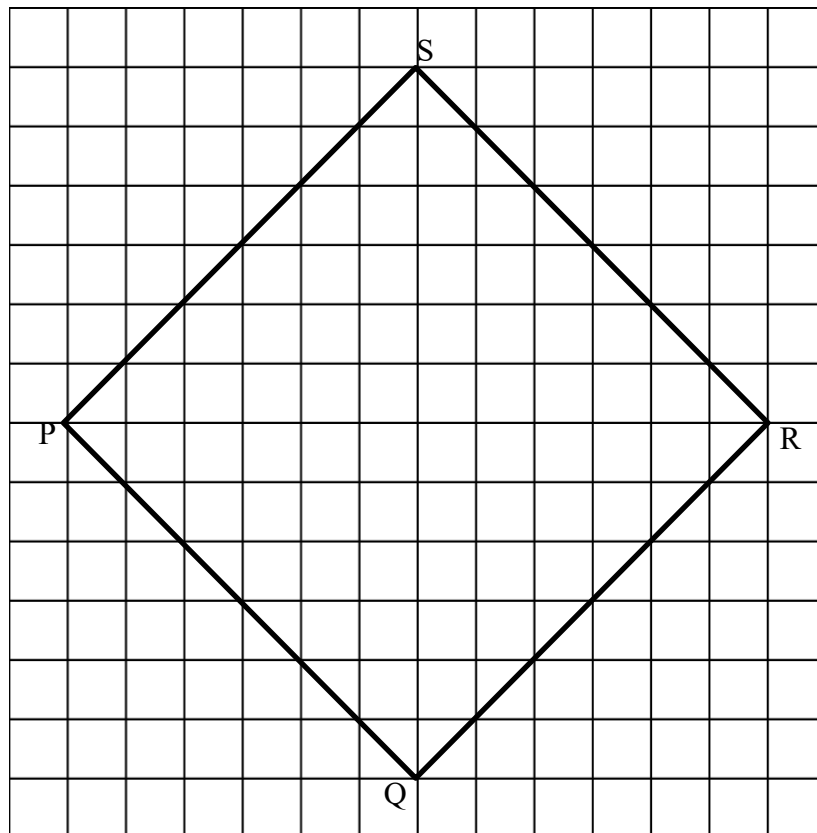
Lukis,
Draw,

- (a) lokus bagi titik X yang sentiasa berjarak sama dari garis PS dan QR.
the locus of point X which moves such that it is always equidistant from line PS and line QR.
- (b) lokus bagi titik Y yang sentiasa berjarak sama dari titik P dan R.
the locus of point Y which moves such that it is always equidistant from point P and point R.
- (c) tanda \otimes persilangan antara lokus X dan lokus Y.
mark \otimes the intersection of locus X and locus Y.

[3 markah /marks]

Jawapan / Answer

(a), (b), (c)



Rajah 4
Diagram 4

- 5 Encik Fazli telah membeli insurans kebakaran untuk rumahnya. Jadual 1 menunjukkan maklumat berkenaan insurans kebakaran yang diambil oleh beliau.

Encik Fazli has bought a fire insurance for his house. Table 1 shows information about the fire insurance taken by him.

Nilai boleh insurans <i>Insurable value</i>	RM380 000
Ko-Insurans <i>Co-insurance</i>	80% daripada nilai boleh insuran <i>80% of insurable value</i>
Deduktibel <i>Deductible</i>	RM6 000

Jadual 1
Table 1

- (a) Hitung jumlah insurans yang harus diambil oleh Encik Fazli.
Calculate the amount of insurance that should be taken by Mr Fazli.
- (b) Rumah Encik Fazli telah mengalami kebakaran dan jumlah kerugiannya adalah sebanyak RM75 000.
Hitung bayaran pampasan yang akan diterima oleh beliau jika dia menginsuranskan rumahnya dengan jumlah RM228 000.
*Mr.Fazli's house has suffered a fire and the total loss is as much as RM75 000.
Calculate the compensation payment that he will receive if he insures his house with the amount of RM228 000.*

[4 markah /marks]

Jawapan / Answer

(a)

(b)

*For
Examiner's
Use*

For
Examiner's
Use

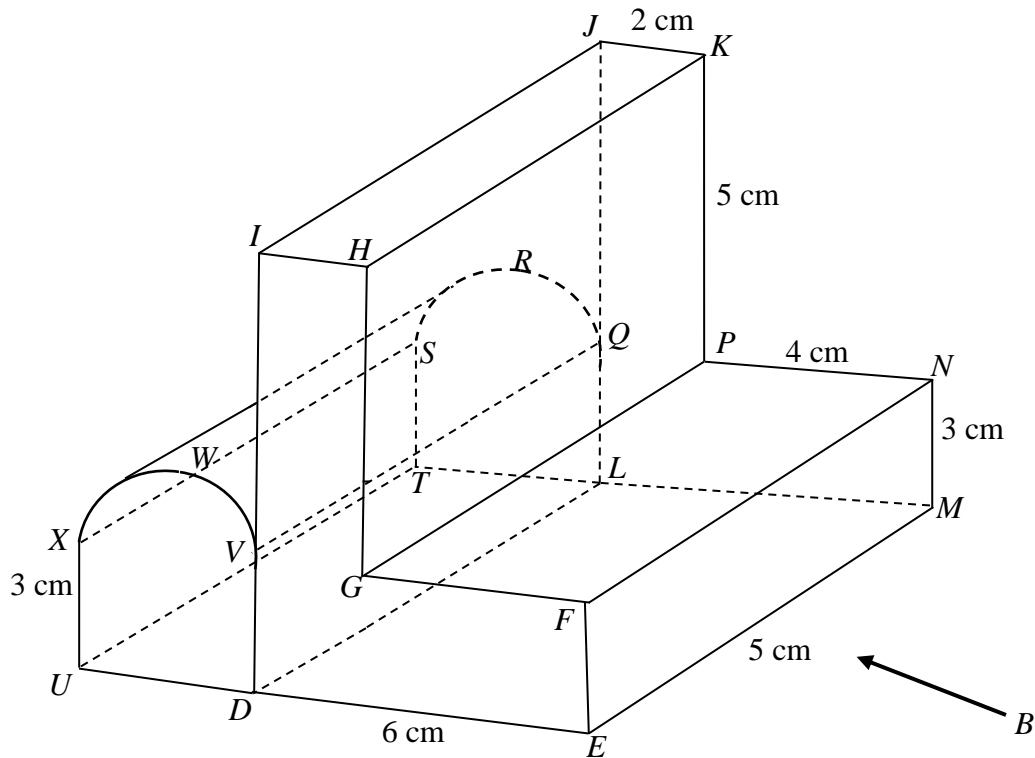
- 6 Anda tidak dibenarkan menggunakan kertas graf untuk menjawab soalan ini.
You are not allowed to use a graph paper to answer this question.

Rajah 5 menunjukkan pepejal berbentuk prisma tegak dicantumkan pada satah tegak DLJI. Permukaan DWU ialah keratan rentas seragam prisma itu. Tapak DEMLTU terletak pada satah mengufuk. Jejari semi bulatan VWX ialah 2 cm dan $DU = 4$ cm.

Diagram 5 shows a right prism is joined to a solid on vertical plane DLJI. The surface DWU is the uniform cross-section of the prism. The base DEMLTU is on the horizontal plane. The radius of the semicircle VWX is 2 cm dan $DU = 4$ cm.

Lukis dengan skala penuh, ujuran ortogon bagi pepejal itu pada satah mencancang yang selari dengan EM sebagaimana dilihat dari B.

Draw to full scale, the orthogonal projection of the solid on a vertical plane parallel to EM as viewed from B.



Rajah 5
Diagram 5

[5 markah /marks]

Jawapan / *Answer*

*For
Examiner's
Use*

For
Examiner's
Use

- 7 (a) Tuliskan kontrapositif bagi implikasi berikut. Seterusnya, nyatakan sama ada kontrapositif itu benar atau palsu.
Write down the contrapositive of the following implication. Hence, state whether the contrapositive is true or false.

Jika p ialah nombor genap, maka p boleh dibahagi tepat dengan 2.
If p is an even number, then p is divisible by 2.

[2 markah /marks]

- (b) Tulis Premis 2 untuk melengkapkan hujah berikut.
Write Premise 2 to complete the following argument.

Premis 1 : Semua fungsi kuadratik mempunyai titik pusingan.
Premise 1 : All quadratic functions have turning points.

Premis 2 :
Premise 2 :

Kesimpulan : Fungsi $g(x)$ mempunyai titik pusingan.
Conclusion : The function $g(x)$ has a turning point.

[1 markah /mark]

- (c) Bentukkan suatu hujah induktif berdasarkan jujukan nombor berikut, 3, 8, 17, 30,
Form an inductive argument based on these sequence number, 3, 8, 17, 30,

$$3 = 3(1) + 2(0)^2$$

$$8 = 3(2) + 2(1)^2$$

$$17 = 3(3) + 2(2)^2$$

$$30 = 3(4) + 2(3)^2$$

$$.... =$$

[2 markah /marks]

Jawapan / Answer

- (a)
-
-
- (b) Premis 2 :
- Premise 2 :
-
- (c)
-

For
Examiner's
Use

- 9 Luqman telah membeli lot tanah dengan harga RM150 000 melalui pinjaman bank. Dia membayar wang pendahuluan sebanyak 40% dan tempoh pinjaman selama 10 tahun. Pihak bank menawarkan kadar faedah sebanyak 2.8% setahun.

Luqman has bought a land lot for RM150 000 through a bank loan. He paid a down payment of 40% and a loan term of 10 years. The bank offers an interest rate of 2.8% per annum.

Hitung,
Calculate,

- (a) bayaran bulanan yang perlu dibayar,
the monthly payment that must be paid,

[3 markah /marks]

- (b) nilai pulangan pelaburan yang diperolehinya jika selepas 10 tahun beliau menjual lot tanah tersebut dengan nilai keuntungan sebanyak RM80 520.
the value of the return on investment he gets if after 10 years he sells the land lot with a profit value of RM80 520.

[2 markah /marks]

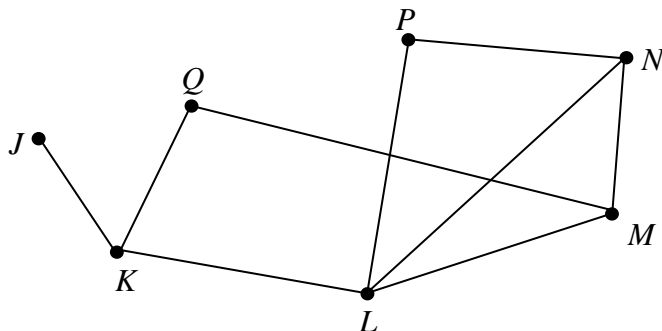
Jawapan / Answer

(a)

(b)

- 10 Rajah 7 menunjukkan satu rangkaian graf.
Diagram 7 shows a network of graph.

For
Examiner's
Use



Rajah 7
Diagram 7

- (a) Nyatakan :
State :
(i) V ,
(ii) bilangan darjah.
number of degrees.
- (b) Lukis satu pokok berdasarkan graf.
Draw a tree based on graph.

[4 markah /marks]

Jawapan / Answer

(a) (i)

(ii)

(b)

Bahagian B

Section B

[45 markah /marks]

Jawab **semua** soalan dalam bahagian ini.

Answer all questions in this section.

*For
Examiner's
Use*

- 11 (a) Lengkapkan jadual di ruang jawapan bagi persamaan $y = -\frac{20}{x}$ dengan menulis nilai-nilai y apabila $x = -3.2$, $x = -1$ dan $x = -0.4$.

Complete table in the answer space for the equations $y = -\frac{20}{x}$ by writing down the values of y when $x = -3.2$, $x = -1$ and $x = -0.4$.

[3 markah /marks]

- (b) Untuk ceraihan soalan ini, gunakan kertas graf yang disediakan pada halaman 17. Anda boleh menggunakan pembaris fleksibel.

For this part of the questions, use graph paper provided on page 17.

You may use a flexible curve ruler.

Dengan menggunakan skala 2 cm kepada 1 unit pada paksi- x dan 2 cm kepada 5 unit pada paksi- y , lukis graf $y = -\frac{20}{x}$ bagi $-8 \leq x \leq -0.4$.

By 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 $y = -\frac{20}{x}$ for $-8 \leq x \leq -0.4$.

[4 markah /marks]

- (c) Dari graf, cari
From graph, find

(i) nilai y apabila $x = -1.5$
the value of y when $x = -1.5$

(ii) nilai x apabila $y = 26$
the value of x when $y = 26$

[2 markah /marks]

Jawapan / Answer

(a) $y = -\frac{20}{x}$

x	-8	-5	-4	-3.2	-2.5	-2	-1	-0.8	-0.4
y	2.5	4	5		8	10		25	

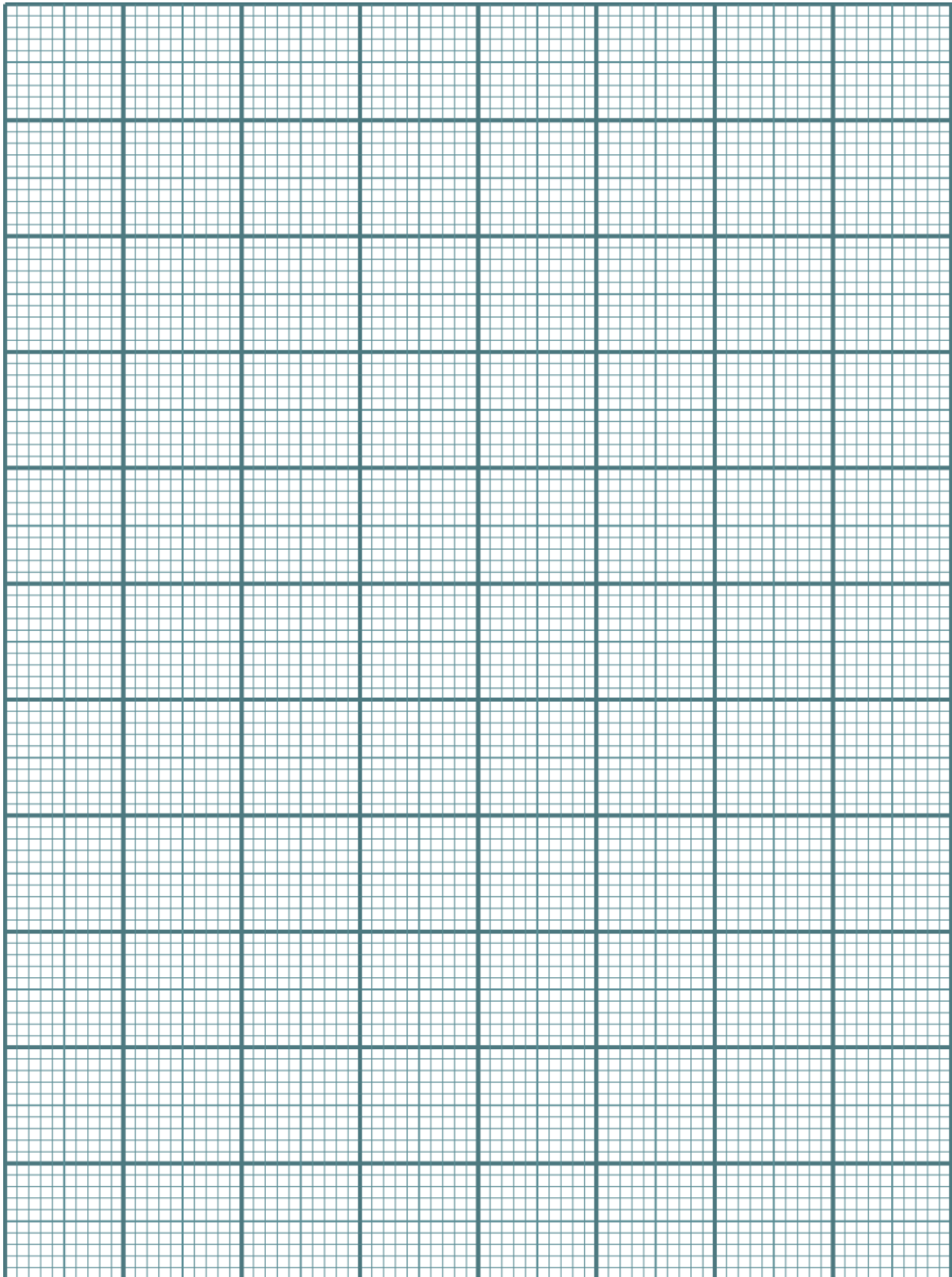
- (b) Rujuk graf
Refer graph

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

(ii) $x = \dots\dots\dots$

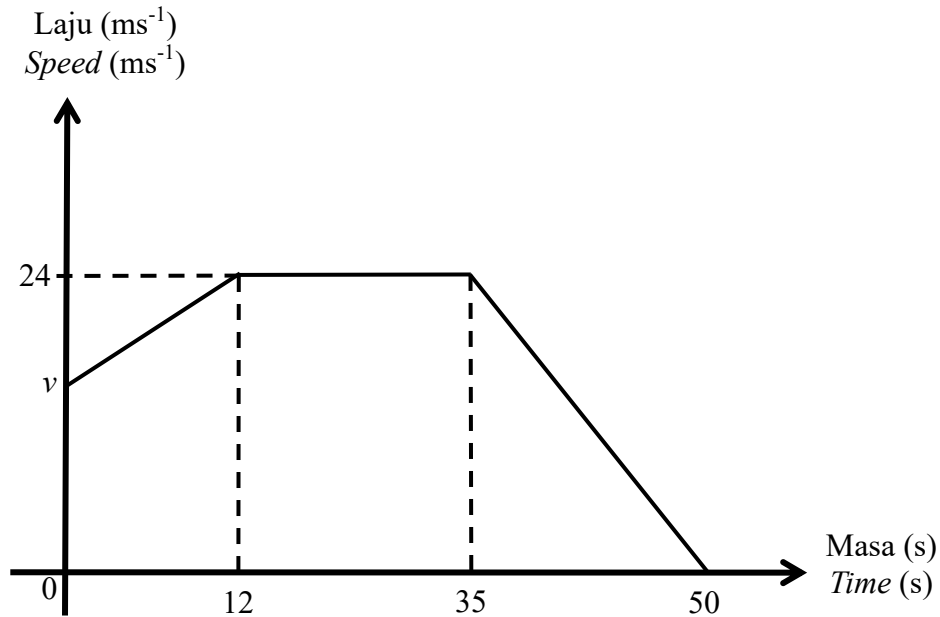
Graf untuk Soalan 11(b)
Graph for Question 11(b)

*For
Examiner's
Use*



For
Examiner's
Use

- 12 Rajah 8 menunjukkan graf laju-masa bagi pergerakan suatu zarah dalam tempoh 50 saat.
Diagram 8 shows a speed-time graph for the movement of a particle for a period of 50 seconds.



Rajah 8
Diagram 8

- (a) Nyatakan :
State :
- (i) laju seragam, dalam ms^{-1} , zarah itu,
the uniform speed, in ms^{-1} , of the particle,
 - (ii) tempoh masa, dalam s, zarah itu bergerak dengan laju seragam.
the duration of time, in s, for which the particle moves with uniform speed.
- (b) Hitung nilai v , jika jumlah jarak yang dilalui dalam 50 saat ialah 957 m.
Calculate the value of v , if the total distance travel in 50 seconds is 957 m.
- (c) Huraikan pergerakan zarah itu dalam 15 saat terakhir.
Describe the motion of the particle in the last 15 seconds.

[8 markah /marks]

Jawapan / *Answer*

(a) (i)

(ii)

(b)

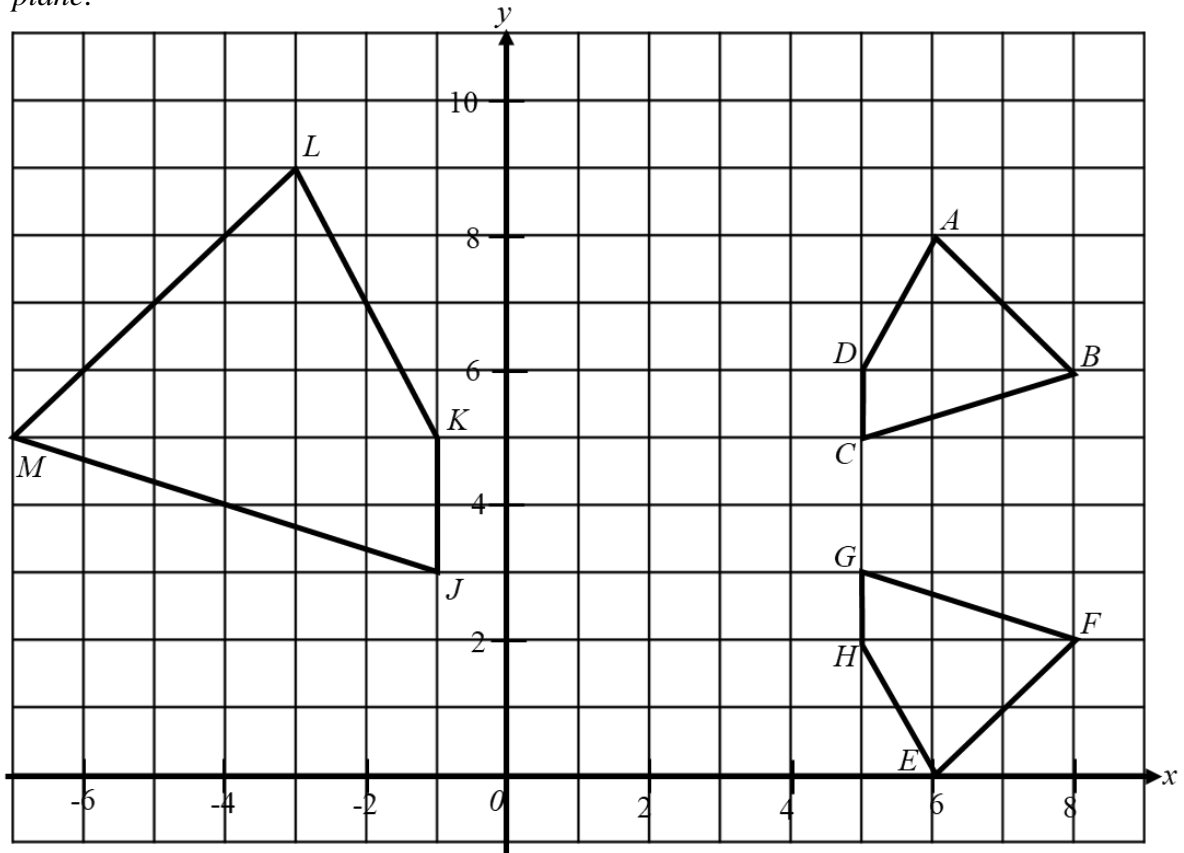
(c)

*For
Examiner's
Use*

For
Examiner's
Use

- 13 Rajah 9 menunjukkan tiga sisi empat ABCD, EFGH dan JKLM, dilukis pada suatu satah cartes.

Diagram 9 shows three quadrilaterals ABCD, EFGH and JKLM, drawn on a cartesian plane.



Rajah 9

Diagram 9

- (a) JKLM ialah imej bagi ABCD di bawah gabungan transformasi XY.
JKLM is the image of ABCD under the combined transformation XY.

Huraikan selengkapnya transformasi,
Describe in full the transformation,

- (i) Y
(ii) X

[5 markah /marks]

- (b) Diberi bahawa JKLM mewakili suatu kawasan yang mempunyai luas 129.6 m^2 . Hitung luas, dalam m^2 , kawasan yang diwakili oleh ABCD. Seterusnya, cari beza antara luas imej dan objek tersebut.

It is given that JKLM represents a region of area 129.6 m^2 . Calculate the area, in m^2 , of the region represented by ABCD. Hence, find the difference between the area of image and object.

[3 markah /marks]

Jawapan / Answer

(a) (i) Y :

(ii) X :

(b)

*For
Examiner's
Use*

For
Examiner's
Use

- 14 Pendapatan tahunan Encik Harris ialah RM84 450 pada tahun 2021. Jadual 2.1 menunjukkan pelepasan cukai yang dituntutnya dan Jadual 2.2 menunjukkan keratan kadar cukai pendapatan individu untuk tahun taksiran 2021.
Mr Harris's annual income was RM84 450 in 2021. Table 2.1 shows the tax reliefs he claimed and Table 2.2 shows part of the individual income tax rates for assessment year of 2021.

Pelepasan cukai / <i>Tax relief</i>	Amaun / <i>Amount (RM)</i>
Individu / <i>Individual</i>	9000
Insurans hayat dan KWSP <i>Life insurance and EPF</i> (Terhad kepada RM7000 / <i>Limited to RM7000</i>)	8350
Gaya hidup / <i>Lifestyle</i> (Terhad kepada RM2500 / <i>Limited to RM2500</i>)	3400
Perbelanjaan perubatan untuk ibu bapa <i>Medical expences for parents</i> (Terhad kepada RM5000 / <i>Limited to RM5000</i>)	1250
Anak yang belum berkahwin dan berumur 16 tahun <i>Unmarried son of 16 years old</i>	2000

Jadual 2.1

Table 2.1

Kadar cukai pendapatan individu untuk tahun taksiran 2021
Individual income tax rates for assessment year of 2021

Banjaran Pendapatan Bercukai <i>Chargeable Income (RM)</i>	Pengiraan <i>Calculation (RM)</i>	Kadar Rate (%)	Cukai Tax (RM)
20 001 – 35 000	20 000 pertama / <i>On the first 20 000</i> 15 000 berikutnya / <i>Next 15 000</i>	3	150 450
35 001 – 50 000	35 000 pertama / <i>On the first 35 000</i> 15 000 berikutnya / <i>Next 15 000</i>	8	600 1 200
50 001 – 70 000	50 000 pertama / <i>On the first 50 000</i> 20 000 berikutnya / <i>Next 20 000</i>	14	1 800 2 800

Jadual 2.2

Table 2.2

En Harris membayar zakat sebanyak RM485 untuk tahun tersebut.
Mr Harris paid zakat of RM485 for that year.

- (a) Hitung pendapatan bercukai bagi Encik Harris,
Calculate the chargeable income for Mr Harris,

[2 markah /mark]

- (b) Hitungkan cukai pendapatan yang perlu dibayar oleh Encik Harris pada tahun tersebut.
Calculate the income tax payable by Mr Harris for the particular year.

[4 markah /mark]

- (c) Potongan cukai berjadual (PCB) sebanyak RM240 dipotong setiap bulan daripada gajinya. Adakah PCB mencukupi untuk membayar cukai pendapatan En Harris? Justifikasikan jawapan anda.

*A monthly tax deduction (PCB) of RM240 is deducted monthly from his salary.
Is the PCB enough to pay for En Harris's income tax? Justify your answer.*

[4 markah /mark]

Jawapan / Answer

(a)

(b)

(c)

For
Examiner's
Use

- 15 Jadual 3 menunjukkan data bagi bilangan buku yang dibaca oleh 20 orang pelajar di sebuah sekolah.

Table 3 shows data for the number of books read by 20 students at a school.

Bilangan buku <i>Number of books</i>	Kekerapan <i>Frequency</i>
1 - 5	1
6 - 10	3
11 - 15	5
16 - 20	8
21 - 25	3

Jadual 3

Table 3

- (a) Berdasarkan data, hitung :

Based on data, calculate :

- (i) min,
mean,

[3 markah /marks]

- (ii) sisihan piawai.
standard deviation.

[3 markah /marks]

- (b) Menggunakan skala 2 cm kepada 5 buah buku pada paksi mengufuk dan 2 cm kepada 2 orang pelajar pada paksi mencancang, lukiskan histogram longgokan bagi mewakili data tersebut.

Using a scale of 2 cm to 5 books on the horizontal axis and 2 cm to 2 students on the vertical axis, draw a cumulative histogram to represent the data.

[4 markah /marks]

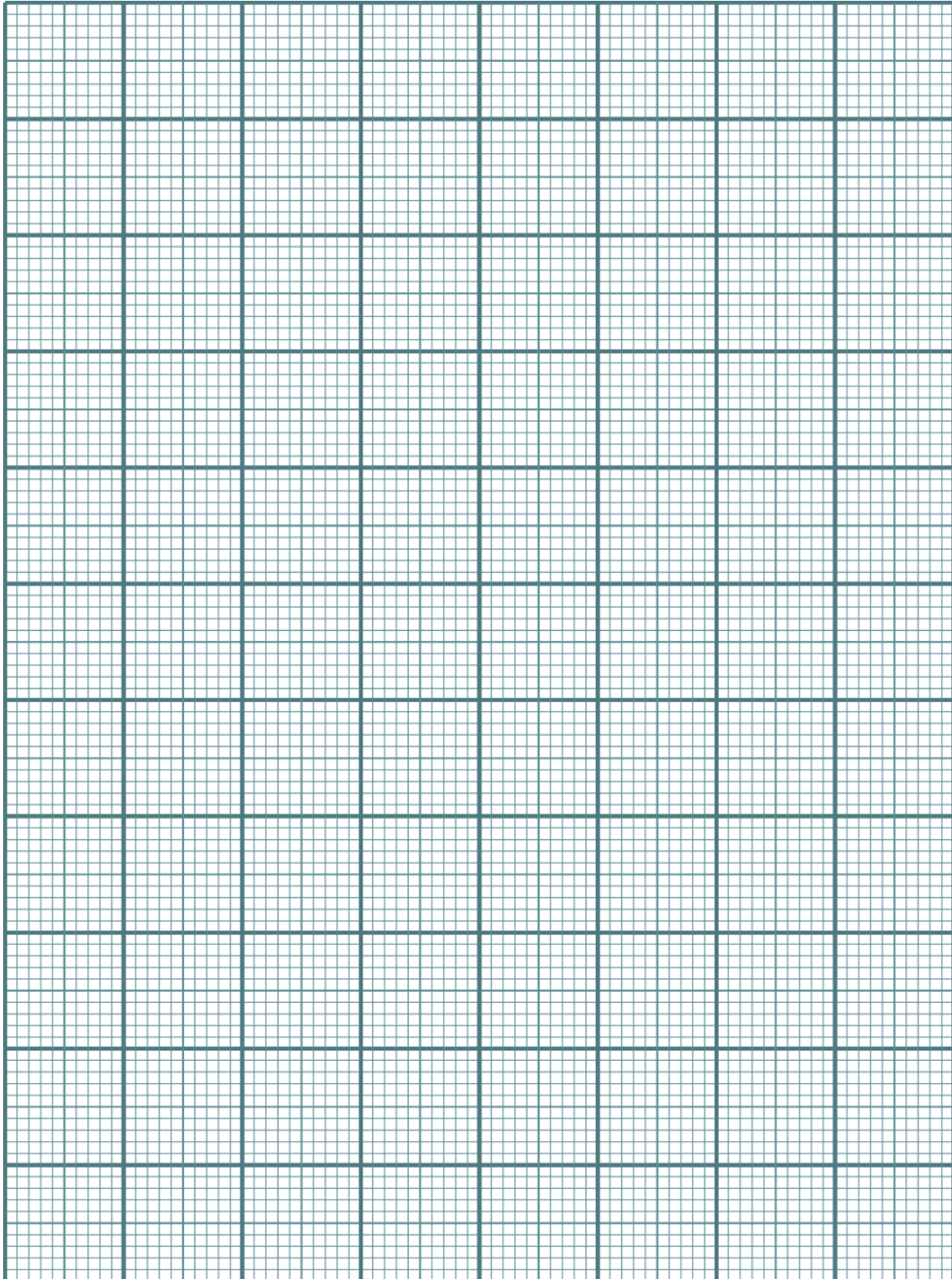
Jawapan / *Answer*

- (a) (i)

- (ii)

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.**For
Examiner's
Use*

- 16 (a) Shizuka merupakan seorang penjual bunga. Beliau menjual x bunga tulip dan y bunga ros di kedainya masing-masing dengan harga RM 3 dan RM 1 sekuntum. Jumlah jualan minimum bunga-bunga tersebut ialah RM 900. Bilangan bunga ros yang dijual sekurang-kurangnya dua kali bilangan bunga tulip. Manakala, bilangan maksimum bunga ros yang dijual ialah 900 kuntum.

Shizuka is a florist. She sells x tulips and y roses in her shop for RM 3 and RM 1 per stalk respectively. The minimum sales amount of the flowers is RM 900. The number of roses sold is at least twice the number of tulips. Meanwhile, the maximum number of roses sold is 900 stalk.

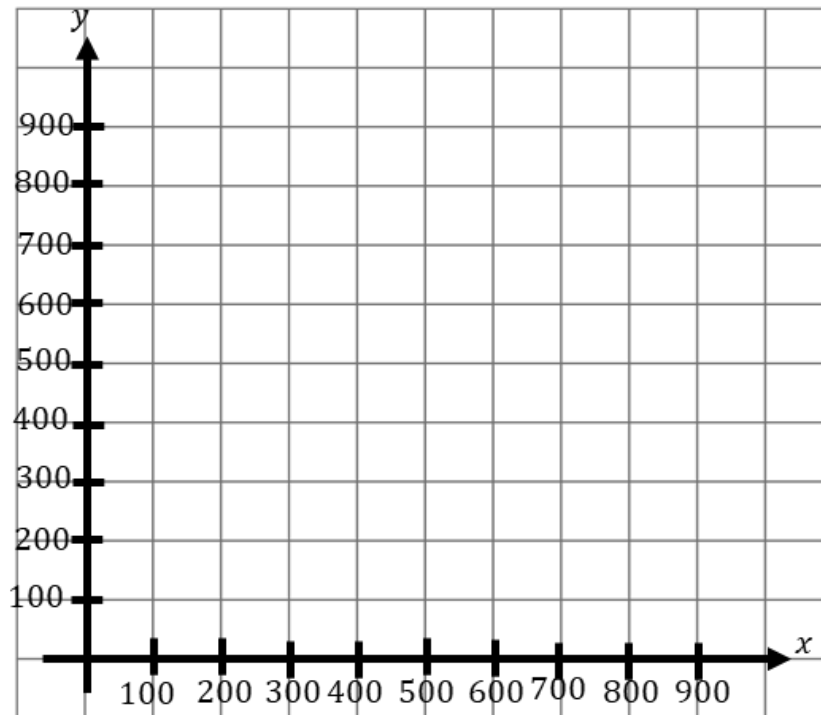
- (i) Tulis tiga ketaksamaan yang memenuhi syarat-syarat tersebut,
Write down the three inequalities that satisfy those requirements,
[3 markah /marks]

- (ii) Pada graf di ruang jawapan, lukis dan lorek rantau yang memenuhi ketiga-tiga syarat itu.
On the graph in the answer space, draw and shade the region that satisfy all three requirements.
[2 markah /marks]

Jawapan / Answer

- (a) (i)

(a) (ii)

For
Examiner's
Use

- (b) Shizuka memperuntukkan 500 saat untuk menghasilkan satu jambangan bunga. Hitung masa, dalam minit, yang diperlukan untuk menghasilkan 650 jambangan bunga. Berikan jawapan anda dalam bentuk piawai.

Shizuka allocates 500 seconds to produce a bouquet of flowers.

Calculate the time, in minutes, which is required to produce 650 bouquets of flowers. Give your answer in a standard form.

[2 markah /marks]

Jawapan / Answer

(b)

For
Examiner's
Use

- (c) Pada suatu hari tertentu, Shizuka telah menerima tempahan untuk membuat empat jambangan bunga bagi sebuah majlis. Beliau telah menggunakan x kuntum bunga tulip dan y kuntum bunga daisy. Harga sekuntum bunga tulip dan bunga daisy masing-masing ialah RM4.50 dan RM4.00. Shizuka memperuntukkan kos sebanyak RM304. Jumlah bunga yang diperlukan ialah sebanyak 72 kuntum.

On one particular day, Shizuka received a reservation to make four bouquets of flowers for a ceremony. He has used x stalks tulips and y stalks of daisy flowers. The price of an tulips and daisy flower is RM4.50 and RM4.00 respectively. Shizuka allocated a cost of RM304. The total number of flowers needed is 72 stalks.

Dengan menggunakan kaedah matriks, hitung bilangan bunga tulip dan bunga daisy yang diperlukan.

Using the matrices method, calculate the required number of tulips and daisy flowers.

[5 markah /marks]

Jawapan / Answer

(c)

- 16 (d) Shizuka menyimpan hasil jualannya sebanyak RM7800 di Bank Ohio. Bank itu menawarkan kadar faedah tetap sebanyak 3.5% setahun. Hitung jumlah simpanannya, dalam RM, selepas 5 tahun.

*For
Examiner's
Use*

Shizuka kept RM7800 of her sales proceeds in Ohio Bank. The bank offers a fixed interest rate of 3.5% per annum.

Calculate the amount of her savings, in RM, after 5 years.

[3 markah /marks]

Jawapan / Answer

(d)

For
Examiner's
Use

- 17 (a) Jadual 4 menunjukkan pelan kewangan Encik Khairulnizam yang bekerja sebagai pensyarah di sebuah kolej di Kuala Lumpur.

Table 4 shows the financial plan of Mr. Khairulnizam who works as a lecturer at a college in Kuala Lumpur.

Pelan Kewangan Encik Khairulnizam
Mr. Khairulnizam's Financial Plan

Pendapatan dan Perbelanjaan / Income and Expenditure	RM	
Gaji bulanan / <i>Monthly salary</i>	8500	
Pendapatan Pasif / <i>Passive income</i>	800	
Jumlah pendapatan bulanan <i>Monthly income total</i>	9300	
Simpanan tetap bulanan / <i>Monthly fixed saving</i> (10% daripada pendapatan bulanan / <i>10% of monthly income</i>)	X	
Simpanan dana kecemasan / <i>Emergency fund saving</i>	200	
Baki pendapatan / <i>Income balance</i>		8170
Perbelanjaan tetap / Fixed expenses:		
Ansuran rumah / <i>House installment</i>	1500	
Ansuran kereta / <i>Car installment</i>	1200	
Premium insurans / <i>Insurance premium</i>	500	
Jumlah perbelanjaan tetap / Total of fixed expenses		3200
Perbelanjaan tidak tetap / Variable expenses		
Belanja dapur / <i>Kitchen expenses</i>	1800	
Petrol / <i>Petrol</i>	500	
Bil telefon / <i>Telephone bill</i>	300	
Bil utility / <i>Utility bill</i>	450	
Bercuti / <i>Holiday</i>	1000	
Perbelanjaan ibu bapa / <i>Parent's expenses</i>	500	
Jumlah perbelanjaan tidak tetap / Total variable expenses		4550
Pendapatan lebihan/kurangan / Surplus of income /deficit		Y

Jadual 4

Table 4

- (i) Cari nilai X dan Y.
Find the value of X and Y.
- (ii) Jelaskan aliran tunai Encik Khairulnizam.
Explain Mr. Khairulnizam's cash flow.

[3 markah /marks]

Jawapan / Answer

For
Examiner's
Use

(a) (i)

(ii)

- (b) Encik Khairulnizam sangat meminati sebuah kereta terbaru keluaran Syarikat Kereta Juta Berhad yang bernilai RM270 000. Dia bercadang untuk mendapatkan kereta idamannya itu dalam tempoh tiga tahun dan dia ingin menyimpan wang untuk membayar 10% wang pendahuluan. Berapakah simpanan bulanan yang harus disimpan untuk mencapai matlamat kewangan Encik Khairulnizam. Pada pandangan anda, adakah Encik Khairulnizam mampu membeli kereta tersebut. Berikan justifikasi anda.

Mr. Khairulnizam is passionate about a new car produced by Syarikat Car Juta Berhad which is worth RM270 000. He plans to get his dream car within three years and he wants to save money to pay 10% of the down payment. How many monthly savings should be saved to achieve Mr. Khairulnizam's financial goals. In your opinion, is Mr. Khairulnizam able to afford the car? Give your justification.

[3 markah/marks]

Jawapan / Answer :

(b)

For
Examiner's
Use

- (c) Sempena hari ulangtahun perkahwinan Encik Khairulnizam yang kelima, dia bercadang membeli hadiah untuk isteri dan anaknya. Beliau ingin membeli dua pasang baju kurung dan seutas jam tangan untuk isterinya, serta sepasang baju kurung dan seutas jam tangan untuk anaknya. Beliau merancang pelan kewangan untuk bulan tersebut dengan bajet untuk isteri dan anaknya masing-masing RM550 dan RM350.

In conjunction with Mr. Khairulnizam's fifth wedding anniversary, he plans to buy gifts for his wife and children. He wants to buy a pair of baju kurung and a watch for his wife, as well as a pair of baju kurung and a watch for his daughter. He plans a financial plan for the month with a budget for his wife and child of RM550 and RM350 respectively.

Dengan menggunakan kaedah matriks, hitung harga, dalam RM, sepasang baju kurung dan seutas jam tangan itu.

By using the matrix method, calculate the price, in RM, of a pair of baju kurung and a watch.

[5 markah/marks]

Jawapan / Answer :

(c)

- 17 (d) En Khairulnizam menempah dewan untuk meraikan majlis ulangtahun perkahwinannya. Masa yang digunakan, t , untuk menyusun kerusi berubah secara langsung dengan bilangan kerusi, x , dan secara songsang dengan bilangan pekerja, y . Dia mengupah 4 orang pekerja dalam masa 2 jam untuk menyusun 200 kerusi.

Mr Khairulnizam booked a hall to celebrate his wedding anniversary. The time spent, t , to arrange the chair varies directly as the number of seats, x , and inversely as the number of employees, y . He hired 4 employees for 2 hours to arrange 200 seats.

Hitung bilangan pekerja yang diperlukan untuk menyusun 200 kerusi dalam tempoh 1 jam.

Calculate the numbers of employees needed to arrange 200 seats in 1 hour.

[4 markah/marks]

Jawapan / Answer :

(d)

KERTAS SOALAN TAMAT
END OF QUESTION PAPER