

TERHAD



NAMA :	
KELAS :	

i-MODUL KECEMERLANGAN SPM SMKA DAN SABK 2023

SIJIL PELAJARAN MALAYSIA 2023 (SET 2)

MATEMATIK

1449/2

KERTAS 2

2 $\frac{1}{2}$ jam

Dua jam tiga puluh minit

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1. *Tulis nama dan tingkatan anda pada ruang yang disediakan.*
2. *Kertas peperiksaan 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.*
5. *Calon dikehendaki membaca maklumat di halaman belakang kertas peperiksaan ini.*

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

Kertas peperiksaan ini mengandungi **38** halaman bercetak.

NOMBOR DAN OPERASI
NUMBER AND OPERATIONS

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

PERKAITAN DAN ALGEBRA
RELATIONSHIP AND ALGEBRA

- | | |
|--|---|
| <p>1 <i>Jarak/Distance</i></p> $= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ | <p>2 <i>Titik Tengah / midpoint</i>,</p> $(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$ |
| <p>3 <i>Laju Purata</i> = $\frac{\text{Jumlah jarak}}{\text{Jumlah masa}}$</p> $\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$ | <p>4 $m = \frac{y_2 - y_1}{x_2 - x_1}$</p> |
| <p>5 $A^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$</p> | <p>6 $m = -\frac{\text{pintasan-y}}{\text{pintasan-x}}$</p> $m = -\frac{\text{y-intercept}}{\text{x-intercept}}$ |

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 = πj^2
Area of circle = πr^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 = $\frac{1}{2} \times$ *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 parallel sides* \times *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 = *cross sectional area* \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, $\bar{x} = \frac{\sum fx}{\sum f}$
- 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
Section A

[40 markah]

[40 marks]

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

- 1** Rajah 1 menunjukkan senarai nombor perdana antara 30 dan 80.

Diagram 1 shows a list of prime numbers between 30 and 80.

31	37	P	43	47	53	Q	61	67	71	R	79
----	----	----------	----	----	----	----------	----	----	----	----------	----

Rajah 1

Diagram 1

Cari nilai $\frac{(P-Q)}{(R-P)}$.

Find the value of $\frac{(P-Q)}{(R-P)}$.

[3 markah]

[3 marks]

2 Gambar rajah Venn di ruang jawapan menunjukkan set P , set Q dan set R dengan keadaan set semesta, $\xi = P \cup Q \cup R$. Pada rajah di ruang jawapan, lorek set

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

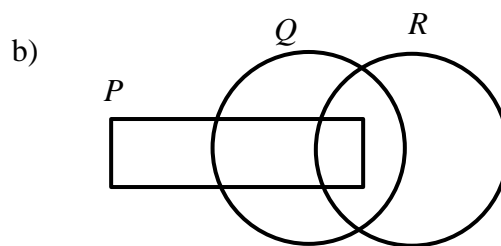
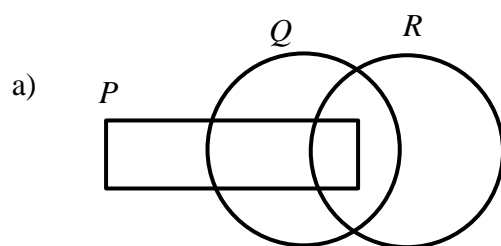
a) $P \cap Q$

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

[3 markah]

[3 marks]

Jawapan / Answer :



- 3 Diberi bahawa nisbah a kepada b ialah $2 : 5$. Cari nilai a jika $b = 15$.
Seterusnya, cari peratusan bagi b .

Given that ratio of a to b is $2 : 5$. Find the value of a if $b = 15$.

Next, find the percentage of b .

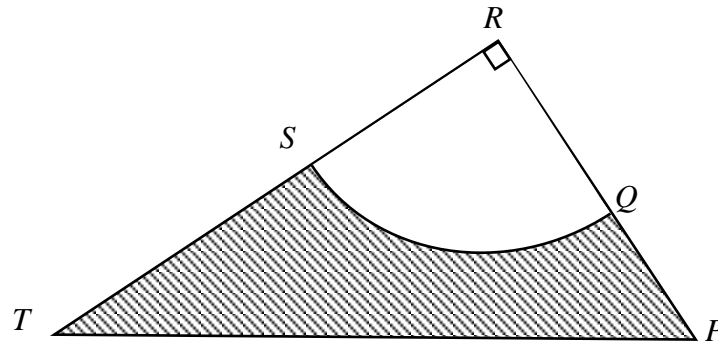
[3 markah]

[3 marks]

Jawapan / Answer :

- 4 Rajah 2 menunjukkan sebuah segi tiga bersudut tegak PRT . R ialah pusat sukuan itu. Diberi $RS = 14$ cm, $ST = 10$ cm dan $PQ = 4$ cm.

Diagram 2 shows a right-angled triangle, PRT . R is a centre for the quadrant. Given $RS = 14$ cm, $ST = 10$ cm and $PQ = 4$ cm.



Rajah 2
Diagram 2

Hitung perimeter, dalam cm, kawasan berlorek.

Calculate the perimeter of the shaded area in cm.

[Guna / Use $\pi = \frac{22}{7}$]

[4 markah]

[4 marks]

Jawapan / Answer :

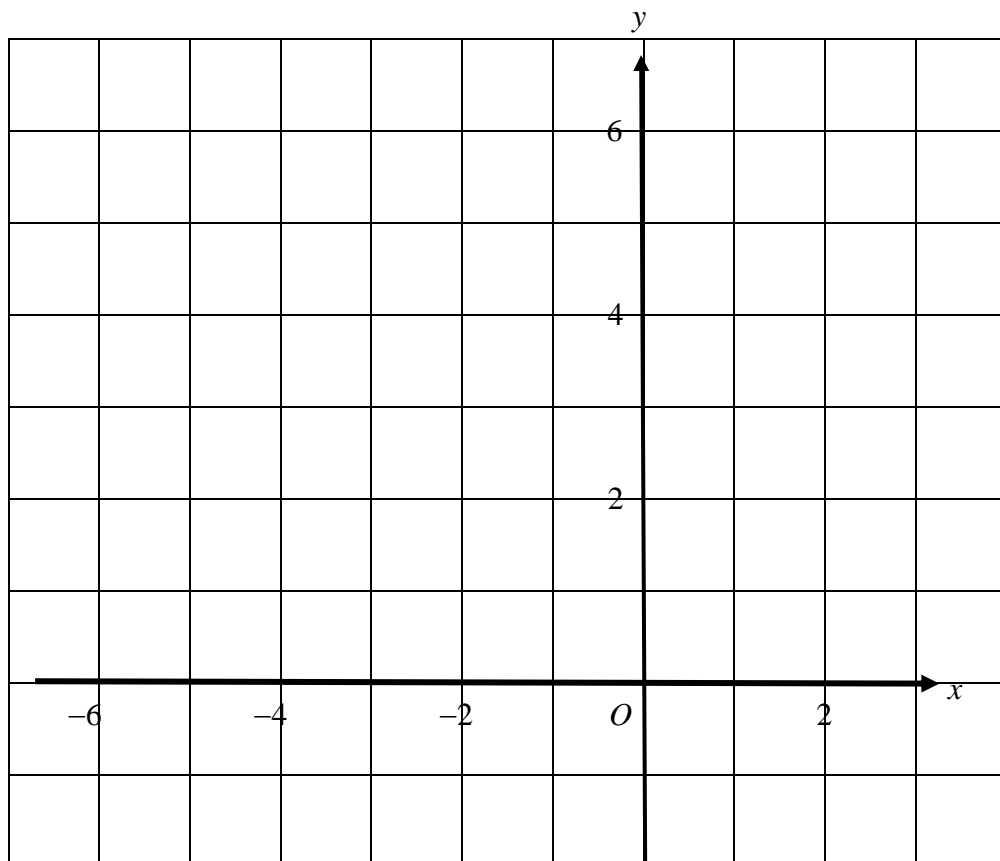
- 5 Lukis dan lorek rantau yang memuaskan ketiga-tiga ketaksamaan $y \leq x + 6$, $x < -1$ dan $y \geq -x - 1$ pada Rajah 3 di ruang jawapan.

Draw and shade the region which satisfies all three inequalities $y \leq x + 6$, $x < -1$ and $y \geq -x - 1$ in Diagram 3 in the answer space.

[5 markah]

[5 marks]

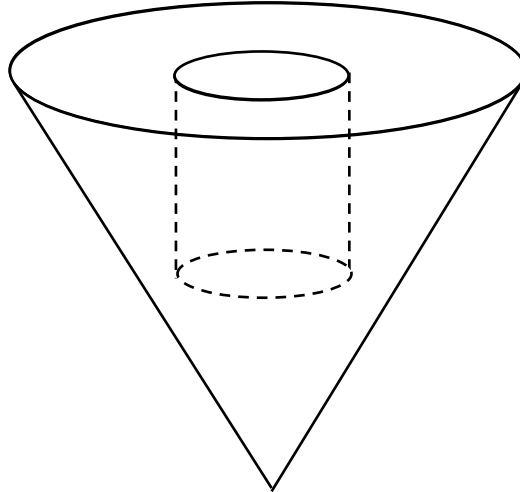
Jawapan / Answer :



Rajah 3
Diagram 3

- 6 Rajah 4 menunjukkan sebuah pepejal berbentuk kon berjejari 14 cm dan tinggi 15 cm. Sebuah silinder yang berjejari 6 cm dan tinggi 8 cm dikeluarkan daripada tapak kon itu.

Diagram 4 shows a solid cone with radius 14 cm and height 15 cm. A cylinder with radius 6 cm and height 8 cm is removed from the base of the cone.



Rajah 4
Diagram 4

Menggunakan $\pi = \frac{22}{7}$, hitung isi padu, dalam cm^3 , pepejal yang tinggal.

Using $\pi = \frac{22}{7}$, calculate the volume, in cm^3 , of the remaining solid.

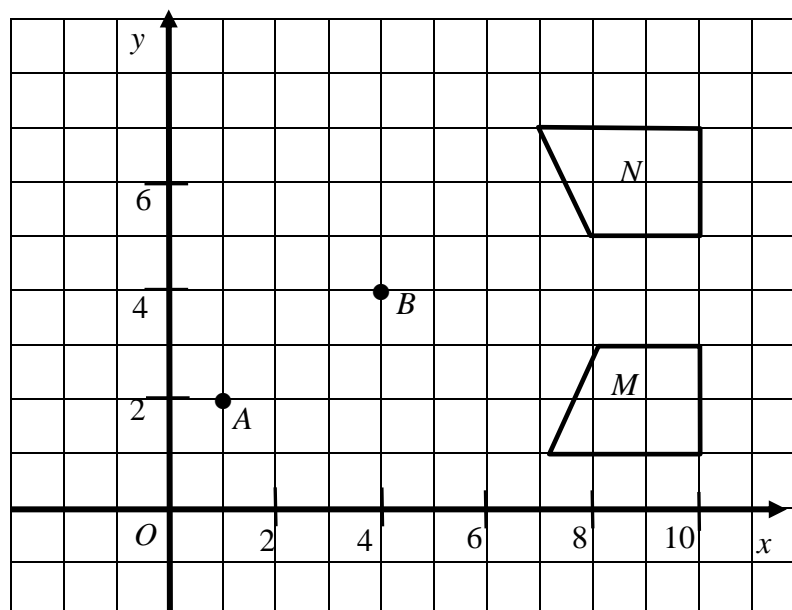
[4 markah]

[4 marks]

Jawapan / Answer :

- 7 (a) Rajah 5 menunjukkan titik A , titik B , objek M dan objek N ditanda pada suatu satah Cartes.

Diagram 5 shows point A , point B , object M and object N on a Cartesian plane.



Rajah 5
Diagram 5

Transformasi \mathbf{T} ialah translasi $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$.

Transformasi \mathbf{R} ialah putaran 90° lawan arah jam pada pusat B .

Nyatakan koordinat imej bagi titik A di bawah setiap transformasi berikut.

Transformation \mathbf{T} is a translation $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$.

Transformation \mathbf{R} is a rotation of 90° anticlockwise about the centre B .

State the coordinates of the image of point A under each of the following transformations.

- (i) \mathbf{T}
(ii) \mathbf{TR}

[3 markah]

[3 marks]

- (b) Berdasarkan Rajah 4, N ialah imej bagi M di bawah transformasi X .
Huraikan selengkapnya transformasi X .
*Based on Diagram 4, N is the image of M under the transformation X .
Describe, in full, the transformation X .*

[2 markah]

[2 marks]

Jawapan / Answer:

(a) (i)

(ii)

(b)

- 8 Tentukan nilai kebenaran implikasi di bawah.

“Jika $3x = 6$, maka $x = 2$ ”

Seterusnya, tulis akas, songsangan dan kontrapositif bagi implikasi tersebut.

Determine the truth value of the implication below.

“If $3x = 6$, then $x = 2$ ”

Then, write the converse, inverse and contrapositive of the implication.

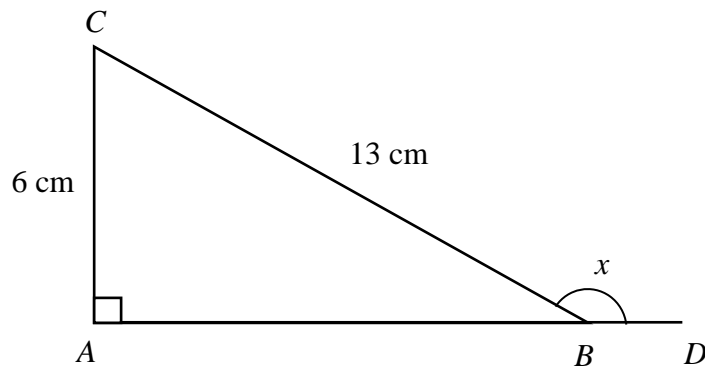
[4 markah]

[4 marks]

Jawapan / Answer:

- 9 Rajah 6 menunjukkan segi tiga bersudut tegak ABC . Diberi ABD ialah garis lurus dan $AD = BC$.

The Diagram 6 shows a right-angled triangle ABC . Given ABD is a straight line and $AD = BC$.



Rajah 6
Diagram 6

- (a) Cari panjang BD .
Find the length of BD .
- (b) Cari nilai bagi
Find the value for
- $\sin x$
 - $\tan x$

[4 markah]

[4 marks]

Jawapan / Answer:

(a)

(b) (i)

(ii)

- 10 Sebuah restoran menjual jus oren dan jus epal dalam dua jenis gelas, iaitu gelas kecil dan gelas besar. Harga jus gelas kecil dan gelas besar masing-masing ialah RM x dan RM y . Pada suatu hari, restoran itu telah menjual 45 gelas kecil jus oren, 30 gelas besar jus oren, 35 gelas kecil jus epal dan 25 gelas besar jus epal. Jumlah hasil pendapatan daripada jualan masing-masing ialah RM255 dan RM205.

Menggunakan kaedah matriks, hitung harga jus gelas kecil dan jus gelas besar yang dijual.

A restaurant sells orange juice and apple juice in two types of glasses, small glass and big glass. The price of a small glass of juice and a big glass of juice are RM x and RM y respectively. One day, the restaurant sold 45 small glasses of orange juice, 30 big glasses of orange juice, 35 small glasses of apple juice and 25 big glasses of apple juice. The total income from the sales of orange juice and apple juice are RM255 and RM205 respectively.

Using matrix method, calculate the price of a small glass of juice and a big glass of juice sold.

[5 markah]

[5 marks]

Jawapan / Answer :

Bahagian / Section B

[45 markah / marks]

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

- 11 (a) Cari titik persilangan bagi dua garis lurus berikut.

Find the point of intersection of the following two straight lines.

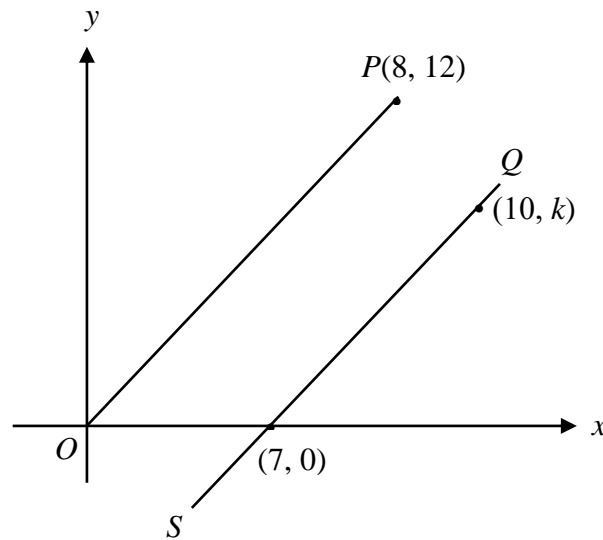
$$y = -2x + 12$$

$$3y - 4x = 6$$

[4 markah]

[4 marks]

- (b) Rajah 7 menunjukkan dua garis lurus, OP dan SQ , dilukis pada suatu satah Cartes.

Garis lurus OP adalah selari dengan SQ .*Diagram 7 shows two straight lines, OP and SQ , drawn on a Cartesian plane.**The straight line OP is parallel to SQ .*

Rajah 7
Diagram 7

Cari

Find

- (i) kecerunan garis OP .

the gradient of OP .

- (ii) nilai k .

the value of k .

[4 markah]

[4 marks]

[Lihat halaman sebelah

TERHAD

Jawapan / *Answer*:

(a)

(b) (i)

(ii)

- 12 (a) Darius ingin membeli insurans kebakaran untuk rumahnya. Pihak insurans memaklumkan bahawa nilai boleh insurans rumahnya ialah RM520 000. Namun polisi insurans yang ingin dibelinya mempunyai peruntukan ko-insurans untuk menginsuranskan 90% daripada nilai boleh insurans dengan deduktibel sebanyak RM14 000. Darius hanya menginsuranskan rumahnya dengan jumlah RM400 000 sahaja.

Darius wants to buy a fire insurance for his house. The insurance company informed that the insurable value of his house is RM520 000. However, the insurance policy he wants to buy has a co-insurance provision to insure 90% of the insurable value with a deductible of RM14 000. Darius only insured his house with a total of RM400 000.

- (i) Hitung nilai penalti ko-insurans sekiranya rumah Darius terbakar dengan kerugian sebanyak RM150 000.

Calculate the value of the co-insurance penalty if Darius's house catches fire with a loss of RM150 000.

- (ii) Hitung jumlah pampasan yang akan diterima Darius jika rumahnya terbakar dengan kerugian menyeluruh.

Calculate the amount of compensation that Darius will receive if his house suffered a total loss.

[6 markah]

[6 marks]

- (b) Bagi insurans kereta, Darius telah memilih untuk menginsuranskan keretanya di bawah polisi komprehensif. Beliau juga memiliki polisi insurans perubatan utama dengan peruntukan deduktibel sebanyak RM200 dan fasal penyertaan peratusan ko-insurans 85/15 dalam polisinya. Dalam suatu kejadian, kereta yang dipandunya itu telah terlibat dalam kemalangan dan beliau telah dimasukkan ke hospital dengan kos perubatan berjumlah RM1 200.

For car insurance, Darius has chosen to insure his car under the comprehensive policy. He also has a major medical insurance policy with a deductible provision of RM200 and a 85/15 co-insurance percentage participation clause in his policy. In one incident, the car he was driving was involved in an accident and he was admitted to hospital with medical costs amounting to RM1 200.

- (i) Nyatakan jumlah pampasan bagi kos perubatannya itu yang ditanggung oleh pihak insurans motor miliknya. Jelaskan jawapan anda.

State the amount of compensation for his medical costs incurred by his motor insurance. Explain your answer.

- (ii) Hitung bayaran kos perubatan yang ditanggung oleh pihak insurans perubatannya. Calculate the medical cost borne by his medical insurance.

[4 markah]

[4 marks]

Jawapan / *Answer*:

(a) (i)

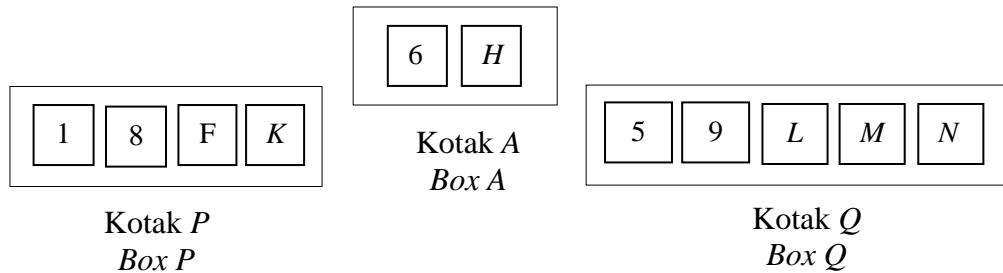
(ii)

(b) (i)

(ii)

- 13 (a) Rajah 8 menunjukkan dua keping kad dalam kotak A, empat keping kad dalam kotak P dan lima keping kad dalam kotak Q.

Diagram 8 shows two cards in box A, four cards in box P and five cards in box Q.



Rajah 8

Diagram 8

Sekeping kad dipilih secara rawak daripada kotak A. Jika kad nombor 6 dipilih, maka sekeping kad lain dipilih secara rawak daripada kotak P. Jika kad huruf H dipilih, maka sekeping kad lain dipilih secara rawak daripada kotak Q.

A card is picked at random from box A. If the number card 6 is chosen, then another card is picked at random from box P. If the letter card H is chosen, then another card is picked at random from box Q.

Dengan menyenaraikan kesudahan bagi suatu peristiwa, cari kebarangkalian bahawa

By listing the outcomes at an event, find the probability that

- (i) kedua-dua kad itu berlabel dengan huruf,

both cards are labelled with letters,

- (ii) sekeping kad berlabel dengan nombor dan sekeping kad lain berlabel dengan huruf.

a card is labelled with a number and another card is labelled with a letter.

[4 markah]

[4 marks]

(b) A dan B ialah dua peristiwa dengan keadaan $P(A) = \frac{6}{7}$, $P(B)' = \frac{1}{2}$ dan

$$P(A \cap B') = \frac{10}{21}.$$

A and B are two events such that $P(A) = \frac{6}{7}$, $P(B)' = \frac{1}{2}$ and $P(A \cap B') = \frac{10}{21}$.

(i) Tentukan $P(A \cap B)$.

Determine $P(A \cap B)$.

(ii) Seterusnya, nyatakan sama ada A dan B adalah peristiwa saling eksklusif atau peristiwa tidak saling eksklusif. Beri justifikasi anda.

Hence, state whether A and B are mutually exclusive events or non-mutually exclusive events. Give your justification.

[4 markah]

[4 marks]

Jawapan / *Answer*:

(a) (i)

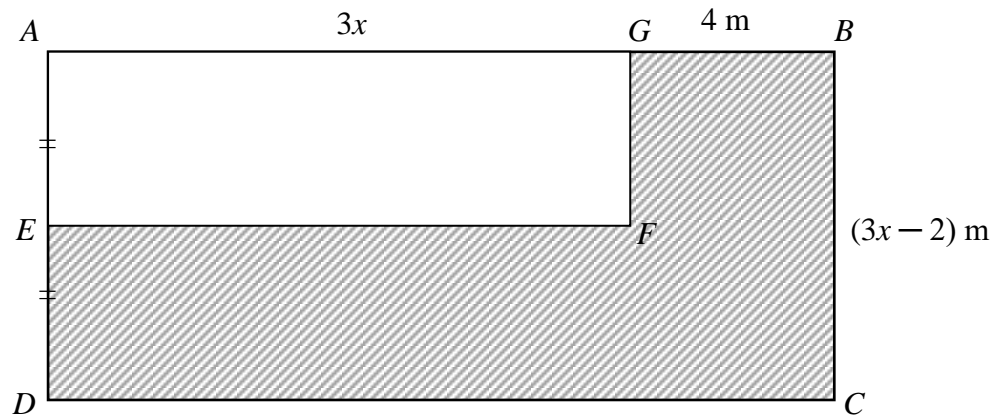
(ii)

(b) (i)

(ii)

- 14 Sufian bercadang untuk membina sebuah landskap di halaman rumahnya yang berbentuk segi empat tepat $ABCD$ seperti dalam Rajah 9. Diberi panjang $GB = 4$ m dan $AE = ED$.

Sufian plans to build a landscape in his yard which is in the shape of rectangular $ABCD$ as shown in Diagram 9. Given the length of $GB = 4$ m and $AE = ED$.



Rajah 9

Diagram 9

- (a) Bentuk satu ungkapan kuadratik bagi luas landskap halaman rumah Sufian, A m², dalam sebutan x .

Form a quadratic expression for the area of landscape in Sufian's yard, A m², in terms of x .

[1 markah]

[1 mark]

- (b) Diberi luas landskap halaman rumah Sufian ialah 160 m². Hitung nilai x .

Given the area of the landscape in Sufian's yard is 160 m². Calculate the value of x .

[4 markah]

[4 marks]

- (c) Sufian bercadang untuk memasang rumput karpét tiruan pada kawasan yang berlorek. Harga bagi rumput karpét tiruan ialah RM15.90 per meter persegi dan kos bagi upah pemasangan ialah RM2.00 per meter persegi. Sufian mempunyai bajet sebanyak RM2 000, tentukan sama ada Sufian mempunyai bajet yang mencukupi untuk memasang rumput karpét tiruan tersebut.

Sufian plans to install artificial carpet grass on the shaded areas. The price for artificial carpet grass is RM15.90 per meter square and the cost for installation fee is RM2.00 per meter square. Sufian has a budget of RM2 000, determine if Sufian has enough budget to install the artificial grass carpet.

[4 markah]

[4 marks]

Jawapan / Answer:

(a)

(b)

(c)

15 Rajah 10 menunjukkan simpanan bulanan, dalam RM, bagi 40 orang murid.

Diagram 10 shows the monthly savings, in RM, of 40 pupils.

52	40	34	45	52	35	50	36
47	38	40	48	45	42	53	44
45	37	54	32	46	56	40	60
50	44	58	51	36	48	56	32
46	53	44	60	42	38	41	55

Rajah 10
Diagram 10

(a) Berdasarkan data di Rajah 10, lengkapkan Jadual 1 di ruang jawapan pada halaman 27.

Based on the data in Diagram 10, complete Table 1 in the answer space on page 27.

[4 markah]

[4 marks]

(b) Dengan menggunakan skala 2 cm kepada RM5 pada paksi mengufuk dan 2 cm kepada 1 murid pada paksi mencancang, lukis satu poligon kekerapan bagi data tersebut.

By using a scale of 2 cm to RM5 on the horizontal axis and 2 cm to 1 pupil on vertical axis, draw a frequency polygon for the data.

[4 markah]

[4 marks]

(c) Berdasarkan poligon kekerapan di 15(b), nyatakan bilangan murid yang menyimpan lebih daripada RM48.00 dan nyatakan peratusannya.

Based on the frequency polygon in 15(b), calculate the number of student whose saving more than RM48.00 and state the percentage.

[2 markah]

[2 marks]

Jawapan / Answer:

(a)

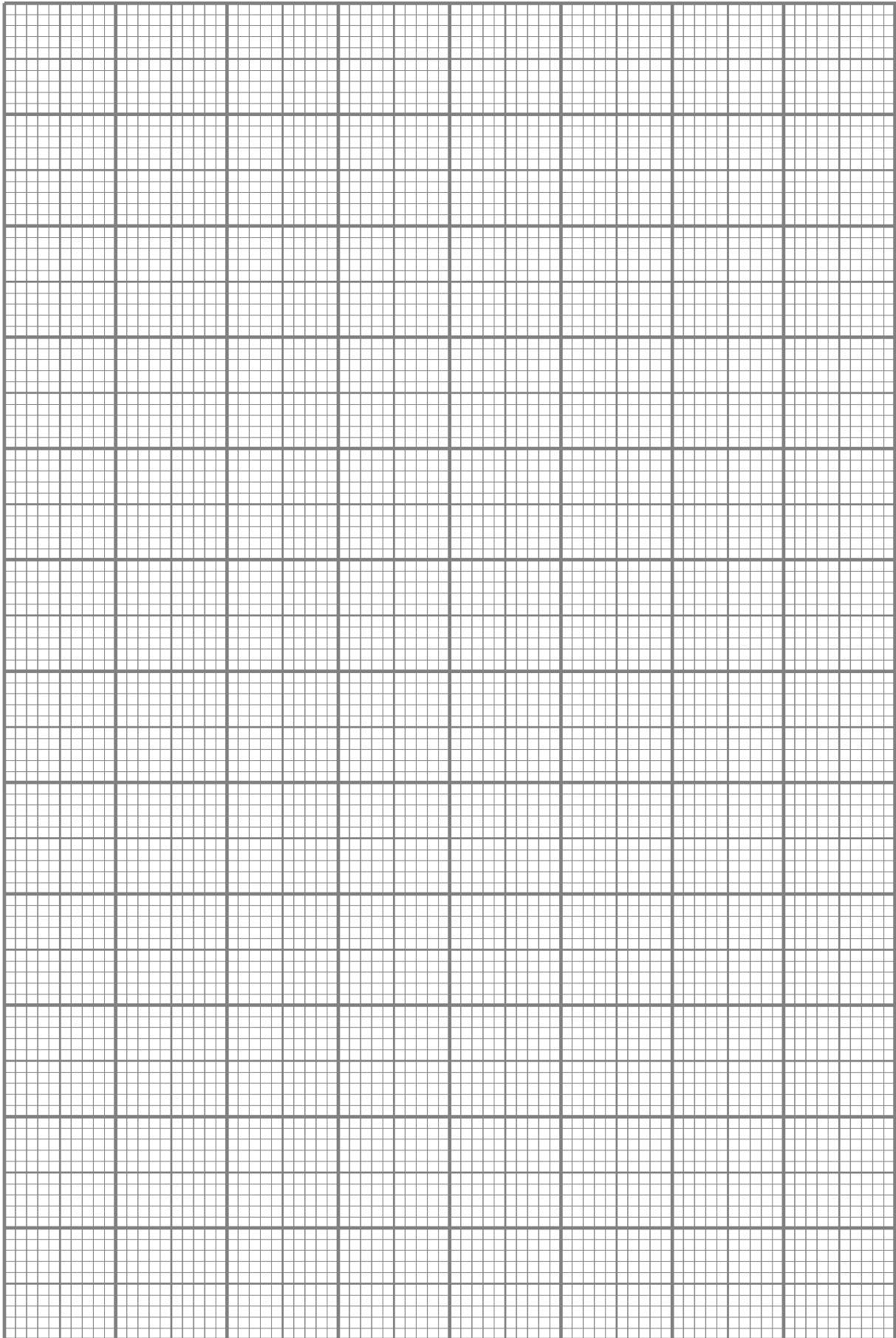
Selang kelas <i>Class interval</i>	Titik tengah <i>Midpoint</i>	Kekerapan <i>Frequency</i>
31 – 35	33	4

Jadual 1
Table 1

(b) Rujuk graf pada halaman **28**.
Refer to the graph on page 28.

(c)

Graf untuk Soalan 15
Graph for Question 15



Bahagian C
Section C

[15 markah]

[15 marks]

Jawab mana-mana **satu** soalan dalam bahagian ini.

*Answer any **one** question in this section.*

- 16** Asila bercadang untuk bercuti bersama keluarganya di Port Dickson. Dia telah melihat beberapa lokasi yang menarik berserta jaraknya yang menjadi antara lokasi pilihan untuk melancong di sekitar Port Dickson.

Jadual 2 menunjukkan maklumat destinasi pilihan Asila berserta jaraknya.

Asila plans a vacation with her family in Port Dickson. She has seen some interesting locations with its distance which is among the preferred locations to travel around Port Dickson.

Table 2 shows the information of Asila's preferred destination with its distance.

Destinasi Pilihan <i>Preferred Destination</i>	Bucu <i>Vertices</i>	Pasangan bucu <i>Vertex pair</i>	Jarak (km) <i>Distance (km)</i>
Pantai Teluk Kemang	<i>TK</i>	<i>TK - MT</i>	7
Medan Ikan Bakar	<i>IB</i>	<i>AA - TT</i>	5
Muzium Tentera	<i>MT</i>	<i>MT - AA</i>	18
Alive 3D Art	<i>AA</i>	<i>TK - IB</i>	14
Taman Tema Wild West Cowboy	<i>TT</i>	<i>TK - AA</i>	22
		<i>IB - TT</i>	6

Jadual 2

Table 2

(a) Berdasarkan Jadual 2

Based on the Table 2

(i) lengkapkan graf berpemberat dan tak terarah yang diberikan. Seterusnya, tentukan jarak terpendek dari Teluk Kemang ke Taman Tema Wild West Cowboy.

complete the weighted and non-directional graphs provided. Hence, determine the shortest distance from Teluk Kemang to Taman Tema Wild West Cowboy.

(ii) Asila dan adiknya Dzakiah memandu kereta masing-masing dari Alive 3D Art ke Medan Ikan Bakar. Asila singgah ke Taman Tema Wild West Cowboy terlebih dahulu, manakala Dzakiah tersesat dan memandu melalui jalan ke Muzium Tentera. Hitung beza jarak, dalam km, perjalanan dari Alive 3D Art ke Medan Ikan Bakar oleh Asila dan Dzakiah.

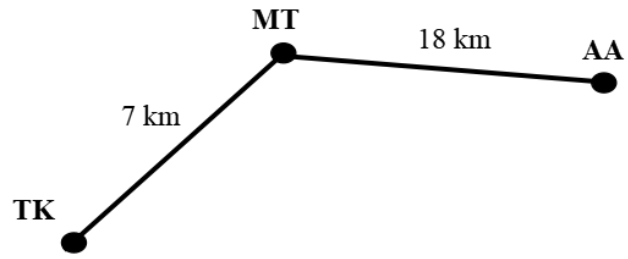
Asila and her sister Dzakiah drove their cars from Alive 3D Art to Medan Ikan Bakar. Asila stopped at Wild West Cowboy Theme Park first, while Dzakiah got lost and drove through the road to Military Museum. Calculate the difference in distance, in km, traveled from Alive 3D Art to Medan Ikan Bakar by Asila and Dzakiah.

[8 markah]

[8 marks]

Jawapan / Answer:

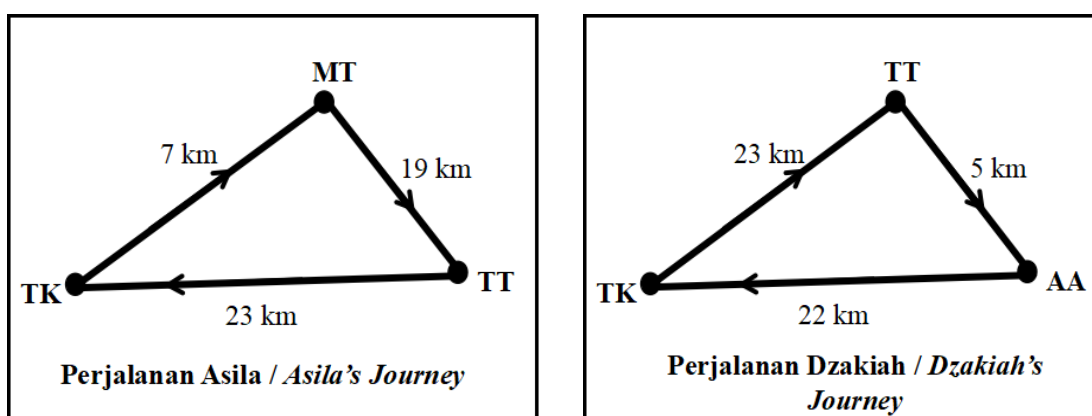
(a) (i)



(ii)

- (b) Rajah 11 menunjukkan graf berpemberat dan terarah perjalanan Asila dan Dzakiah pada hari kedua percutian dari Pantai Teluk Kemang ke Taman Tema Wild West Cowboy. Kedua-dua buah kereta mereka menggunakan minyak jenis RON95 ketika perjalanan pergi dan mengisi minyak jenis RON97 untuk perjalanan balik semula ke Pantai Teluk Kemang.

Diagram 11 shows a weighted and directed graph of Asila and Dzakiah's journey on the second day of the holiday from Teluk Kemang Beach to Wild West Cowboy Theme Park. Both of the cars used RON95 fuel on their way and refueled with RON97 for the return trip to Teluk Kemang Beach.



Rajah 11

Diagram 11

- (i) Jika kos minyak perjalanan pergi dan balik Asila dan Dzakiah masing-masing ialah RM85.00 dan RM88.50, bentukkan dua persamaan linear berdasarkan situasi di atas.

If the cost of fuel for the round trip Asila and Dzakiah are RM85.00 and RM88.50 form two linear equations based on the above situation.

- (ii) Hitung harga minyak jenis RON95 dan RON97 yang digunakan Asila dan Dzakiah per kilometer.

Calculate the price of RON95 and RON97 fuel used by Asila and Dzakiah per kilometer.

[7 markah]

[7 marks]

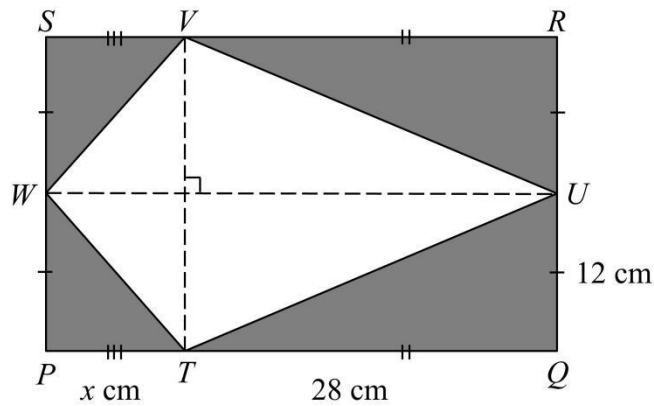
Jawapan / *Answer*:

(b) (i)

(ii)

17 Hafiz ingin membuat layang-layang. Dia melakar sisi empat berbentuk layang berlabel $TUVW$ pada sekeping kertas warna berlabel $PQRS$.

Hafiz wants to build a kite. He sketched four sides of kite shape labeled $TUVW$ on a piece of coloured paper labeled $PQRS$.



Rajah 12(a)

Diagram 12(a)

(a) Diberi perimeter $PQRS$ ialah 120 cm.

Given that the perimeter of $PQRS$ is 120 cm.

(i) Cari nilai x , dalam cm.

Find the value of x , in cm.

(ii) Seterusnya, cari luas kawasan berlorek, dalam cm^2 .

Hence, find the area of shaded region, in cm^2 .

[4 markah]

[4 marks]

Jawapan / Answer:

(a) (i)

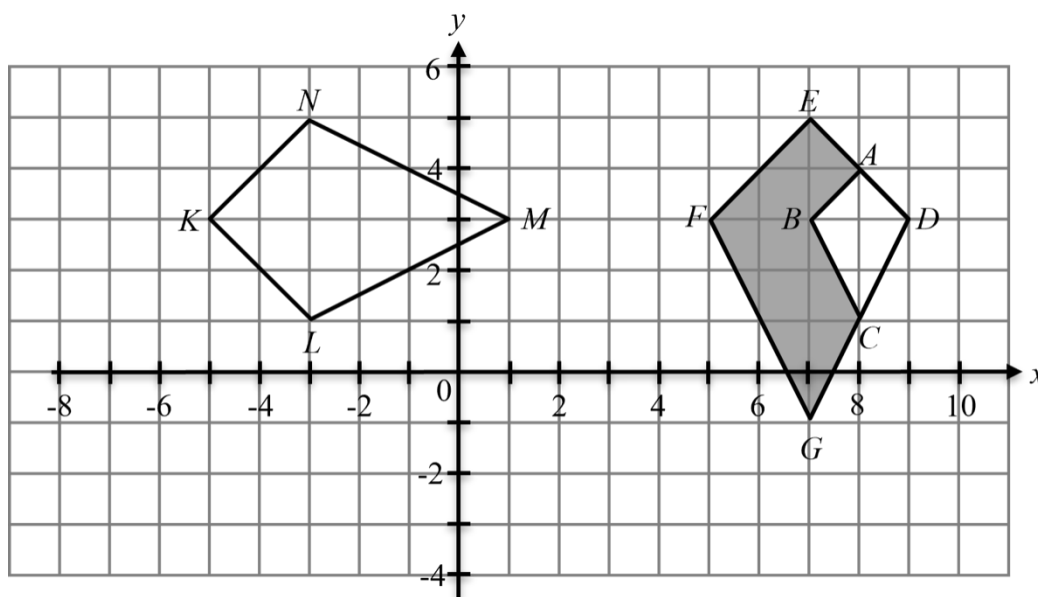
(ii)

- (b) Hafiz melukis layang-layangnya sebagai $KLMN$ pada satah Cartes dan melukis satu layang-layang bersaiz lebih kecil, $ABCD$ untuk adiknya, Izzah.

Rajah 12(b) menunjukkan tiga sisi empat $ABCD$, $EFGD$ dan $KLMN$ dilukis oleh Hafiz pada satah Cartes.

Hafiz draws his kite, $KLMN$ on a Cartesian plane and draw a smaller kite, $ABCD$ for his sister, Izzah.

Diagram 12(b) shows three quadrilaterals $ABCD$, $EFGD$ and $KLMN$ drawn by Hafiz on a Cartesian plane.



Rajah 12(b)

Diagram 12(b)

Layang-layang Izzah, sisi empat $ABCD$ ialah imej bagi layang-layang Hafiz, sisi empat $KLMN$, di bawah satu gabungan transformasi **WV**.

*Izzah's kite, quadrilateral $ABCD$ is the image of Hafiz's kite, quadrilateral $KLMN$, under the combined transformation **WV**.*

- (i) Huraikan selengkapnya transformasi:

Describe in full, the transformation:

(a) **V**,

(b) **W**.

- (ii) Diberi bahawa luas sisi empat *KLMN* ialah luas layang-layang yang dilukis oleh Hafiz seperti dalam Rajah 12(a). Hitung luas, dalam cm^2 kawasan berlorek.

It is given that the area of quadrilateral KLMN is the area of kite drawn by Hafiz as in Diagram 12(a). Calculate the area, in cm^2 , of the shaded region.

[9 markah]

[9 marks]

- (c) Pada pendapat anda, adakah luas permukaan layang-layang mempengaruhi ketinggian layang-layang yang akan diterbangkan? Berikan justifikasi anda.

In your opinion, does the surface area of a kite affect the height of the kite to be flown? Give your justification.

[2 markah]

[2 marks]

Jawapan / *Answer*:

(b) (i)

(ii)

(c)

KERTAS SOALAN TAMAT
END OF QUESTION PAPER

MAKLUMAT UNTUK CALON
INFORMATION FOR CANDIDATES

1. Kertas peperiksaan 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.**
Answer all questions in Section A and Section B.
3. Jawab mana-mana **satu** soalan daripada **Bahagian C.**
Answer any one question from Section C.
4. Tulis jawapan anda pada ruang yang disediakan dalam kertas peperiksaan ini.
Write your answer in the spaces provided in the question paper.
5. Tunjukkan kerja mengira anda. Ini boleh membantu anda untuk mendapatkan markah.
Show your working. It may help you to get marks.
6. Jika anda hendak menukar jawapan, batalkan jawapan yang telah dibuat. Kemudian, tulis jawapan yang baharu.
If you wish to change your answer, cross out the answer that you have done. Then, write down the new answer.
7. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
The diagrams in the questions provided are not drawn to scale unless stated.
8. Markah yang diperuntukkan bagi setiap soalan dan ceraian soalan ditunjukkan dalam kurungan.
The marks allocated for each question and sub-part of a question are shown in brackets.
9. Satu senarai rumus disediakan di halaman 2 hingga 4.
A list of formulae is provided on pages 2 to 4.
10. Anda dibenarkan menggunakan kalkulator saintifik.
You may use a scientific calculator.
11. Serahkan kertas peperiksaan ini kepada pengawas peperiksaan pada akhir peperiksaan.
Hand in this question paper to the invigilator at the end of the examination.