

TERHAD



PEPERIKSAAN AKHIR TINGKATAN 3

PT3 2017

UJIAN BERTULIS

Ogos

2 Jam

50

Mathematics

ARAHAN :

1. Buka kertas soalan ini apabila diberitahu.
2. Tulis **nama** dan **angka giliran** anda pada ruang yang disediakan.
3. Jawapan anda hendaklah ditulis pada ruang jawapan yang disediakan dalam kertas soalan ini.
4. Kertas soalan ini hendaklah diserahkan kepada pengawas peperiksaan pada akhir peperiksaan.

Untuk Kegunaan Pemeriksa

Nama Pemeriksa :

Soalan	Markah Penuh	Markah Diperoleh
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
Jumlah	100	

NAMA :

ANGKA GILIRAN :

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MATHEMATICAL FORMULAE
RUMUS MATEMATIK

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

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

RELATIONS
PERKAITAN

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

5 Midpoint / Titik tengah $= \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

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

Laju purata $= \frac{\text{Jumlah jarak yang dilalui}}{\text{Jumlah masa yang diambil}}$

7 Mean $= \frac{\text{Sum of data}}{\text{Number of data}}$

Min $= \frac{\text{Hasil tambah nilai data}}{\text{Bilangan data}}$

8 Pythagoras Theoram $c^2 = a^2 + b^2$
Teorem Pythagoras

SHAPES AND SPACE
BENTUK DAN RUANG

- 1 Area of rectangle = length \times width
Luas segi empat tepat = panjang \times lebar

- 2 Area of triangle = $\frac{1}{2} \times$ base \times height
Luas segi tiga = $\frac{1}{2} \times$ tapak \times tinggi

- 3 Area of parallelogram = base \times height
Luas segi empat selari = tapak \times tinggi

- 4 Area of trapezium = $\frac{1}{2} \times$ sum of a pair of parrallellines \times height
Luas trapezium = $\frac{1}{2} \times$ hasil tambah dua sisi yang selari \times tinggi

- 5 Circumference of circle = $\pi d = 2\pi r$
Lilitan bulatan = $\pi d = 2\pi j$

- 6 Area of circle = πr^2
Luas bulatan = πj^2

- 7 Curved surface area of cylinder = $2\pi rh$
Luas permukaan melengkung silinder = $2\pi jt$

- 8 Surface area of sphere = $4\pi r^2$
Luas permukaan sfera = $4\pi j^2$

- 9 Volume of right prism = cross sectional area \times length
Isipadu prisma tegak = luas keratan rentas \times tinggi

- 10 Volume of cuboid = length \times width \times height
Isipadu kuboid = panjang \times lebar \times tinggi

$$11 \quad \begin{aligned} \text{Volume of cylinder} &= \pi r^2 h \\ \text{Isipadu silinder} &= \pi j^2 t \end{aligned}$$

$$12 \quad \begin{aligned} \text{Volume of cone} &= \frac{1}{3} \pi r^2 h \\ \text{Isipadu kon} &= \frac{1}{3} \pi j^2 t \end{aligned}$$

$$13 \quad \begin{aligned} \text{Volume of sphere} &= \frac{4}{3} \pi r^3 \\ \text{Isipadu sfera} &= \frac{4}{3} \pi j^3 \end{aligned}$$

$$14 \quad \begin{aligned} \text{Volume of right pyramid} &= \frac{1}{3} \times \text{base area} \times \text{height} \\ \text{Isipadu piramid tegak} &= \frac{1}{3} \times \text{luas tapak} \times \text{tinggi} \end{aligned}$$

$$15 \quad \begin{aligned} \text{Sum of interior angles of a polygon} &/ \text{ Hasil tambah sudut pedalaman poligon} \\ &= (n - 2) \times 180^\circ \end{aligned}$$

$$16 \quad \begin{aligned} \frac{\text{Arc length}}{\text{Circumference}} &= \frac{\text{Angle subtended at centre}}{360^\circ} \\ \frac{\text{Panjang lengkok}}{\text{Lilitan bulatan}} &= \frac{\text{Sudut pada pusat bulatan}}{360^\circ} \end{aligned}$$

$$17 \quad \begin{aligned} \frac{\text{Area of sector}}{\text{Area of circle}} &= \frac{\text{Angle subtended at centre}}{360^\circ} \\ \frac{\text{Luas sektor}}{\text{Lilitan bulatan}} &= \frac{\text{Sudut pada pusat bulatan}}{360^\circ} \end{aligned}$$

$$18 \quad \begin{aligned} \text{Scale factor} &= \frac{\text{Length of an image}}{\text{Length of corresponding object}} \\ \text{Faktor skala} &= \frac{\text{Panjang suatu imej}}{\text{Panjang objek setara dengannya}} \end{aligned}$$

$$19 \quad \begin{aligned} \text{Area of image} &= k^2 \times \text{area of object} \\ \text{Luas imej} &= k^2 \times \text{luas objek} \end{aligned}$$

Answer ALL questions

Jawab **SEMUA** soalanFor
Examiner's
Use

- 1 (a) Calculate:
Kirakan:

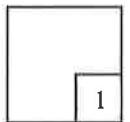
$$\frac{4.25 + 0.25}{5} + 2$$

[1 mark]
[1 markah]

Answer / Jawapan :

- A 6.3
B 4.9
C 3.1
D 2.9

1(a)



- (b) Calculate the percentage of the changes in the following situations:
Hitung peratus perubahan dalam situasi berikut:

- (i) The duration for one learning period has been reduced from 40 minutes to 30 minutes.

Tempoh satu masa pembelajaran dikurangkan dari 40 minit kepada 30 minit.

[1 mark]
[1 markah]

- (ii) Syafiq's body temperature increases from 36°C to 37.8°C.

Suhu badan Syafiq meningkat daripada 36°C kepada 37.8°C.

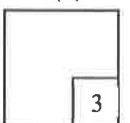
[2 marks]
[2 markah]

Answer / Jawapan:

(i)

(ii)

1(b)



For
Examiner's
Use

- (c) Naufal wants to make some small gift boxes in the shape of a cube from two pieces of cardboards. Every box has a volume of 125 cm^3 . Each cardboard has a dimension of $(100 \times 80) \text{ cm}$.

Naufal ingin membuat beberapa kotak hadiah berbentuk kiub daripada dua keping kadbod. Setiap kotak mempunyai isipadu sebanyak 125 cm^3 . Sekeping kadbod berdimensi $(100 \times 80) \text{ cm}$.

- (i) Calculate the maximum number of boxes that can he make.

Kirakan jumlah maksima kotak yang boleh dibentuk olehnya.

[4 marks]

[4 markah]

- (ii) Hence, find the area of the unused cardboard. Show your calculations to support your answer.

Seterusnya, cari luas kawasan kadbod yang tidak digunakan. Tunjukkan langkah pengiraan untuk menyokong jawapan anda.

[2 marks]

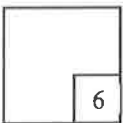
[2 markah]

Answer / Jawapan :

(i)

(ii)

1(c)



- 2 (a) Table 2.1 shows combined operations and its answers converted in percentage.
Jadual 2.1 menunjukkan operasi gabungan dan jawapannya dalam peratusan.

Mark (✓) for the correct answer and (✗) for the incorrect answer.

Tandakan (✓) untuk jawapan yang betul dan (✗) pada jawapan yang salah.

[3 marks]

[3 markah]

Answer / *Jawapan* :

Combined Operation <i>Operasi Gabungan</i>	Answer in percentage <i>Jawapan dalam peratusan (%)</i>	(✓) or / atau (✗)
(i) $0.45 - 0.02 \div 4$	10.75	
(ii) $0.18 \div \frac{6}{7}$	51.4	
(iii) $4.85 \div (3.42 + 1.58)$	97.0	

Table 2.1
Jadual 2.1

2(a)

3

For
Examiner's
Use

- (b) Table 2.2 shows a flight schedule from Kuala Lumpur to Langkawi which takes about 1 hour and 5 minutes. Noraini needs to attend a meeting in Pantai Chenang at 10.30 a.m. She will take a taxi from Langkawi International Airport to the meeting place. The journey will takes $\frac{1}{4}$ of an hour.

Jadual 2.2 menunjukkan jadual penerbangan dari Kuala Lumpur ke Langkawi yang mengambil masa 1 jam 5 minit. Noraini perlu menghadiri mesyuarat di Pantai Chenang pada pukul 10.30 pagi. Dia akan mengambil teksi dari Lapangan Terbang Antarabangsa Langkawi ke tempat mesyuarat. Perjalanan itu mengambil masa $\frac{1}{4}$ jam.

Flight / Penerbangan	Departure Time / Masa Pelepasan
X	8.40 a.m
Y	9.00 a.m
Z	9.40 a.m

Table 2.2
Jadual 2.2

- (i) Determine whether she could attend the meeting on time, if she chooses Flight Z to go to Langkawi. Show your working to support your answer.
Tentukan sama ada dia sempat menghadiri mesyuarat tepat pada waktunya, sekiranya dia memilih Penerbangan Z untuk ke Langkawi. Tunjukkan jalan kerja bagi menyokong jawapan anda.

[2 marks]
[2 markah]

- (ii) Which flight she should choose so that she could reach the meeting 10 minutes earlier?
Penerbangan yang manakah perlu dipilih supaya dia sampai ke mesyuarat 10 minit awal?

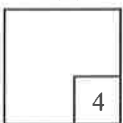
[2 marks]
[2 markah]

Answer / *Jawapan* :

(i)

(ii)

2(b)



- (c) Diagram 2.3 shows the numbers that are expressed as the products of its prime factors.

Rajah 2.3 menunjukkan nombor-nombor yang diungkapkan sebagai hasil darab faktor perdananya.

$2 \times 2 \times 2 \times 2 \times 3 = 48$ $3 \times 2 \times 2 \times 2 \times 3 = 72$ $5 \times 2 \times 2 \times 2 \times 3 = 120$ $7 \times 2 \times 2 \times 2 \times 3 = 168$

Diagram 2.3

Rajah 2.3

- (i) Based on Diagram 2.3, find two more numbers that fulfill the pattern.
Berdasarkan Rajah 2.3, cari dua lagi nombor yang memenuhi pola tersebut.
- (ii) What is the largest number that is less than 450 which fulfills the pattern?
Apakah nombor terbesar yang kurang daripada 450 yang memenuhi pola tersebut?

[3 marks]

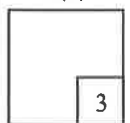
[3 markah]

Answer / Jawapan :

(i)

(ii)

2(c)



For
Examiner's
Use

- 3 (a) Diagram 3.1 shows the score obtained by one group for each station in the second round of a game. The score for the first round is given by s .

Rajah 3.1 menunjukkan markah yang diperolehi oleh satu kumpulan bagi pusingan kedua satu permainan. Markah bagi pusingan pertama diberi sebagai s .

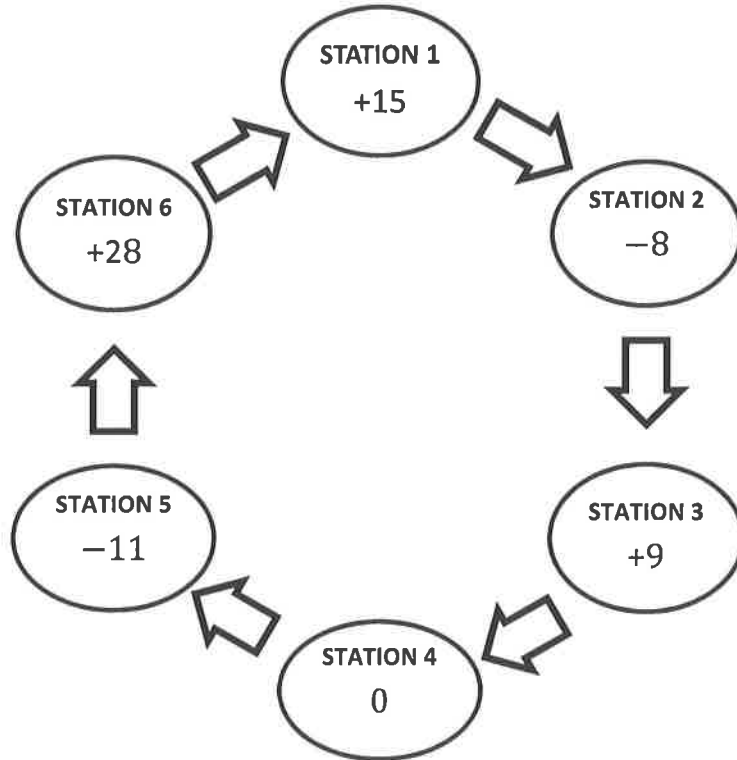


Diagram 3.1
Rajah 3.1

Find the value of s , if the accumulated score from both rounds for the group is 120.
Cari nilai s , jika markah terkumpul kedua-dua pusingan bagi kumpulan itu ialah 120.

[3 marks]
[3 markah]

Answer / Jawapan :

3(a)

3

- (b) Diagram 3.1 shows a swimming pool of parallelogram shape $ACEF$. Given B is a midpoint of AC . The length of $CE = 52$ m. $ABHG$ is a concrete surface of trapezium shape. The ratio of the length of BH to the length of CD is $1 : 3$.

Rajah 3.1 menunjukkan sebuah kolam renang berbentuk segiempat selari $ACEF$. Diberi B ialah titik tengah bagi AC . Panjang $CE = 52$ m. $ABHG$ ialah permukaan konkrit berbentuk trapezium. Nisbah panjang BH kepada panjang CD ialah $1 : 3$.

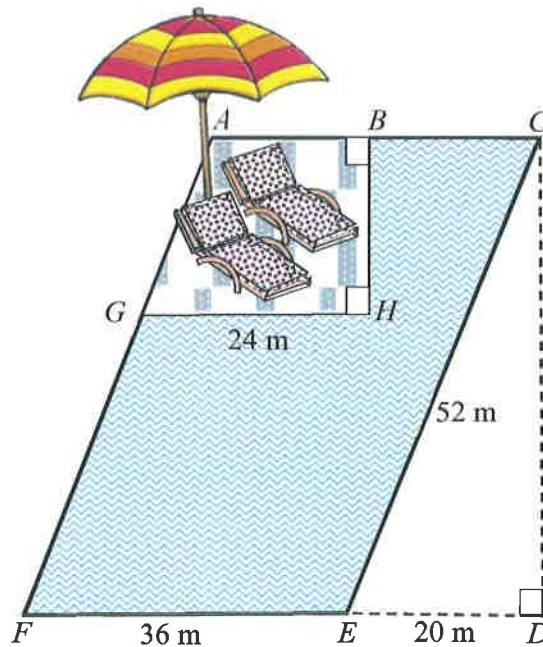


Diagram 3.2
Rajah 3.2

Find the surface area of the water, in m^2 .

Cari luas permukaan air, dalam m^2 .

[4 marks]
[4 markah]

Answer / Jawapan :

3(b)

	4
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For
Examiner's
Use

- (c) Diagram 3.2 shows a jetty. KL is a straight line. Given that MN is parallel to PQ and $\angle KSN = 73^\circ$. A duck is θ° from the line TQ .

Rajah 3.2 menunjukkan sebuah jeti. KL adalah suatu garis lurus. Diberi MN adalah selari dengan PQ dan $\angle KSN = 73^\circ$. Seekor itik berada θ° daripada garis lurus TQ .

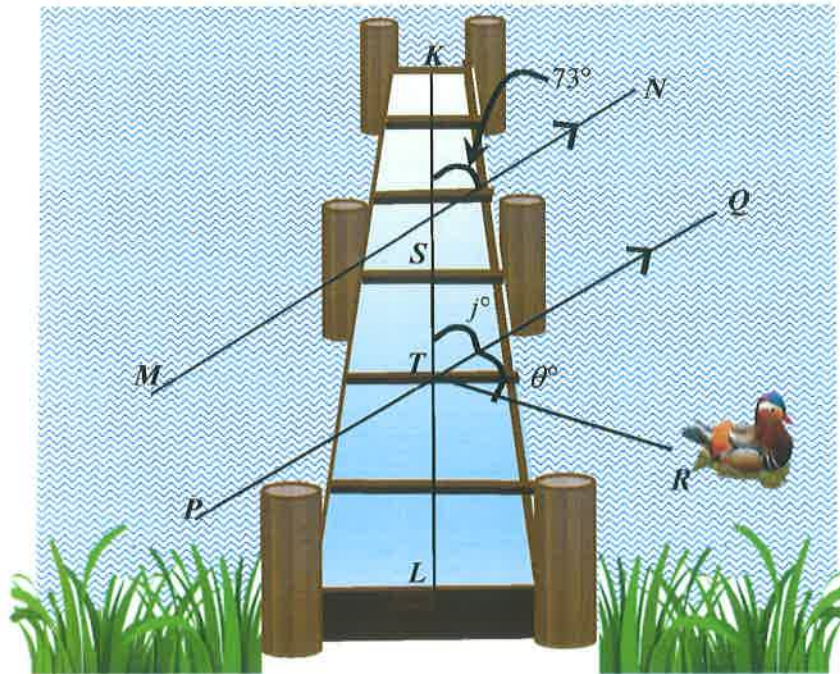


Diagram 3.2
Rajah 3.2

Find the value of θ° if $j^\circ + \theta^\circ = 127^\circ$.

Cari nilai bagi θ° jika $j^\circ + \theta^\circ = 127^\circ$.

[3 marks]
[3 markah]

Answer / Jawapan :

3(c)




3

For
Examiner's
Use

- 4 (a) Match the regular polygons and the number of its sides.
Padankan poligon – poligon sekata dan bilangan sisinya.

[3 marks]
[3 markah]

Answer / Jawapan :

Regular polygon <i>Poligon sekata</i>




Number of sides <i>Bilangan sisi</i>
12
15
16
18

4(a)

3

- (b) (i) Calculate:

Hitung:

$$45(38 - 26) - 9 \times 19$$

[2 marks]
[2 markah]

Answer / Jawapan:

For
Examiner's
Use

(b) (ii) Diagram 4.1 shows a number line.

Rajah 4.1 menunjukkan satu garis nombor.

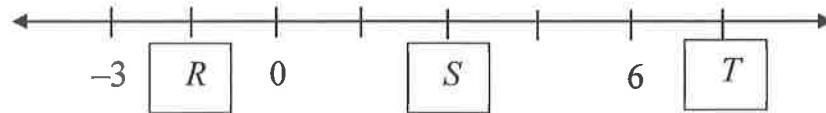


Diagram 4.1

Rajah 4.1

Find the value of $(R - S) \div (2S - T)$.

Cari nilai $(R - S) \div (2S - T)$.

[3 marks]
[3 markah]

Answer / Jawapan :

4(b)

5

- (c) The floor area of a square shaped classroom, in m^2 , is given by $x^2 + 6xy + 9y^2$.
Express the length of the room in terms of x and y .

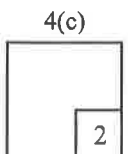
Luas lantai sebuah bilik darjah berbentuk segiempat sama, dalam m^2 , ialah $x^2 + 6xy + 9y^2$.

Ungkapkan panjang bilik darjah tersebut dalam sebutan x dan y .

[2 marks]
[2 markah]

Answer / Jawapan:

For
Examiner's
Use



For
Examiner's
Use

- 5 (a) Diagram 5.1 shows a dustbin. Damia wants to cover the surface of the dustbin using the paper with the shapes given in Table 5.1.
Rajah 5.1 menunjukkan sebuah tong sampah. Damia ingin menutupi permukaan tong sampah itu menggunakan kertas berdasarkan bentuk seperti diberi dalam Jadual 5.1.

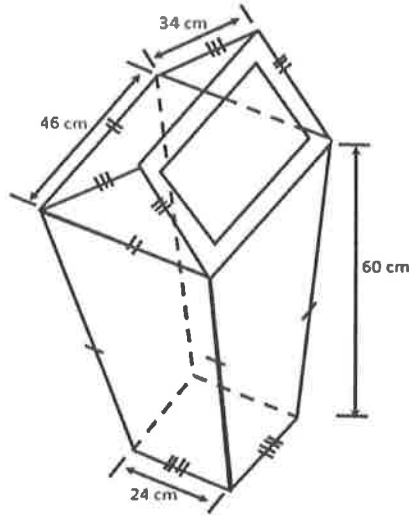


Diagram 5.1
Rajah 5.1

Complete Table 5.1.

Lengkapkan Jadual 5.1.

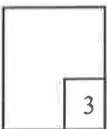
[3 marks]
[3 markah]

Answer / Jawapan :

Shapes / Bentuk	Quantity / Kuantiti
Triangle / Segi tiga	2
Square / Segi empat sama	
Trapezium / Trapezium	
Rectangle / Segi empat tepat	

Table 5.1
Jadual 5.1

5(a)



- (b) Diagram 5.2 shows two linear graphs that intersect at point Q . Point Q is obtained in solving the simultaneous linear equations, $2x - y = 2$ and $x + y = 4$.

Rajah 5.2 menunjukkan dua graf linear yang bersilang pada titik Q . Titik Q diperolehi dengan menyelesaikan persamaan linear serentak, $2x - y = 2$ dan $x + y = 2$.

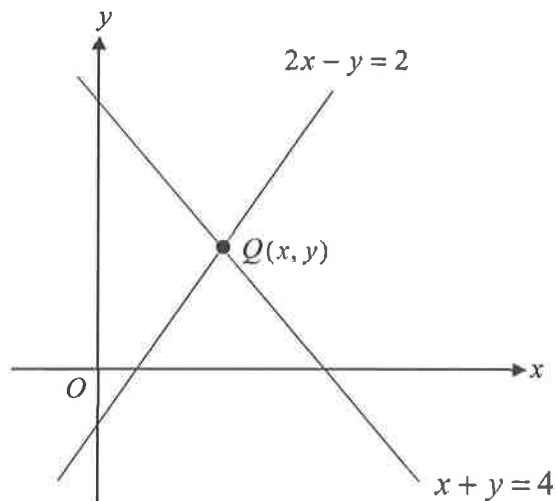


Diagram 5.2
Rajah 5.2

Determine whether the value of x is equal to the value of y .
Show your calculations.
*Tentukan sama ada nilai x sama dengan nilai y .
Tunjukkan pengiraan anda.*

[4 marks]
[4 markah]

Answer / Jawapan :

5(b)

4

For
Examiner's
Use

(c) Diagram 5.3 in the answer space shows a map of *Tasik Cahaya*. Search and Rescue (SAR) operation is conducted to find a crashed helicopter in the lake. A tracking boat M, moves from Pier Purnama to Pier Mentari in a straight line. The boat detects an object 1 km from the boat path. Boat N detects an object located 4 km from the Rembulan Resort. The object is suspected to be the crashed helicopter.

[Scale 1 cm : 1000 m]

Rajah 5.3 dalam ruangan jawapan menunjukkan peta Tasik Cahaya. Operasi Mencari dan Menyelamat (SAR) dilakukan untuk mencari sebuah helikopter yang terhempas di dalam tasik itu. Sebuah bot pengesan M, bergerak dari Jeti Purnama ke Jeti Mentari dalam satu garis lurus. Bot itu mengesan suatu objek sejauh 1 km dari laluan nya. Bot N mengesan suatu objek berada 4 km dari Resort Rembulan. Objek itu dipercayai merupakan helikopter yang terhempas.

[Skala 1 cm : 1000 m]

Mark ⊗ the possible locations of the crashed helicopter.

Tandakan ⊗ kemungkinan kedudukan bagi helikopter terhempas tersebut.

[3 marks]

[3 markah]

Answer / Jawapan :

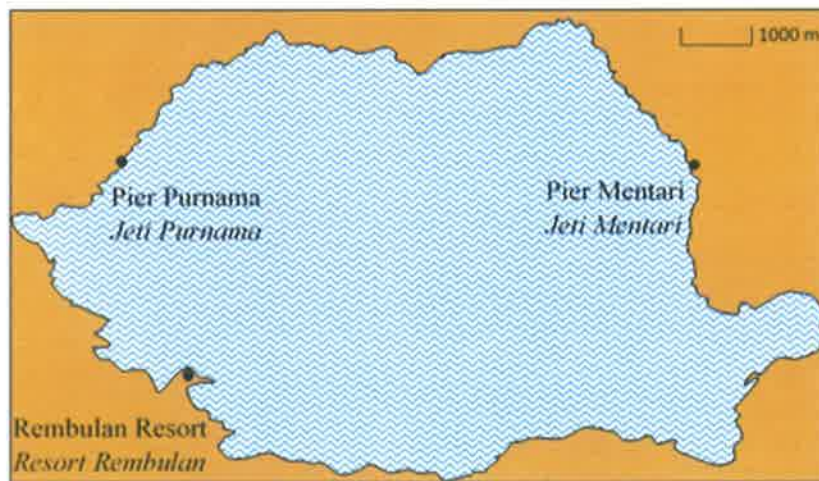


Diagram 5.3
Rajah 5.3

5(c)

3

For
Examiner's
Use

- 6 (a) Determine whether the following are simultaneous linear equations in two variables.

Tentukan sama ada yang berikut adalah persamaan linear dalam dua pembolehubah.

Match your answer.

Padankan jawapan anda.

[3 marks]
[3 markah]

$$\begin{aligned} 3x + 4y &= 12 \\ x - 2y &= -6 \end{aligned}$$

$$\begin{aligned} h + 2k &= 14 \\ h + m &= 9 \end{aligned}$$

$$\begin{aligned} x + y &= 8 \\ y &= x^2 \end{aligned}$$

Yes / Ya

No / Tidak

6(a)

3

For
Examiner's
Use

- (b) Diagram 6.1 shows a coin box comprising of a half cylinder and a cuboid. The width of the box is $7x$ cm, the length is y cm and the height of the cuboid is $6x$ cm. *Rajah 6.1 menunjukkan sebuah kotak syiling terdiri daripada bentuk separa silinder dan sebuah kuboid. Diberi bahawa lebar sisi kotak tersebut adalah $7x$ cm, panjangnya y cm, dan tinggi kuboid itu adalah $6x$ cm.*

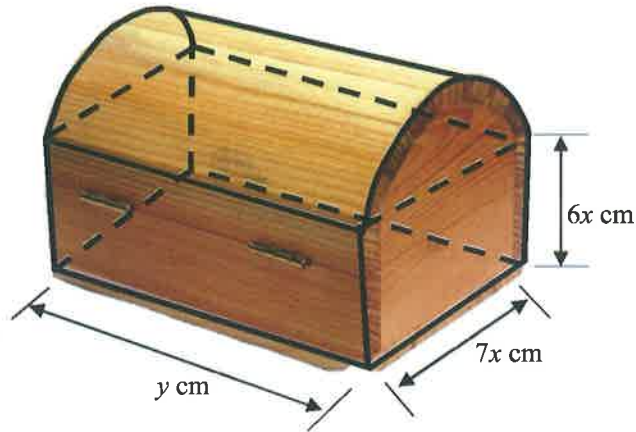


Diagram 6.1
Rajah 6.1

Find the total surface area in terms of x and y , in cm^2 , of the box.

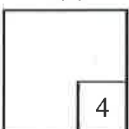
Cari jumlah luas permukaan dalam sebutan x dan y , dalam cm^2 , bagi kotak tersebut.

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

[4 marks]
[4 markah]

Answer / Jawapan :

6(b)



- (c) Diagram 6.2 shows an aeroplane landing on a runway. The touchdown speed is 250 km h^{-1} . It takes 10 minutes for the aeroplane to completely stop after the touchdown.

Rajah 6.2 menunjukkan sebuah kapal terbang mendarat di sebuah landasan. Laju kapal terbang tersebut ketika mendarat adalah 250 km h^{-1} . Ia mengambil masa selama 10 minit untuk berhenti sepenuhnya selepas mendarat.



Diagram 6.2
Rajah 6.2

Calculate the retardation, in km h^{-2} , of the aeroplane.

Kira nyahpecutan, km h^{-2} , kapal terbang tersebut.

[3 marks]
[3 markah]

Answer / Jawapan :

6(b)

3

For
Examiner's
Use

- 7 (a) Diagram 7.1 shows a square grid with sides of 1 unit in length.
Rajah 7.1 menunjukkan grid segi empat sama dengan panjang sisi 1 unit.

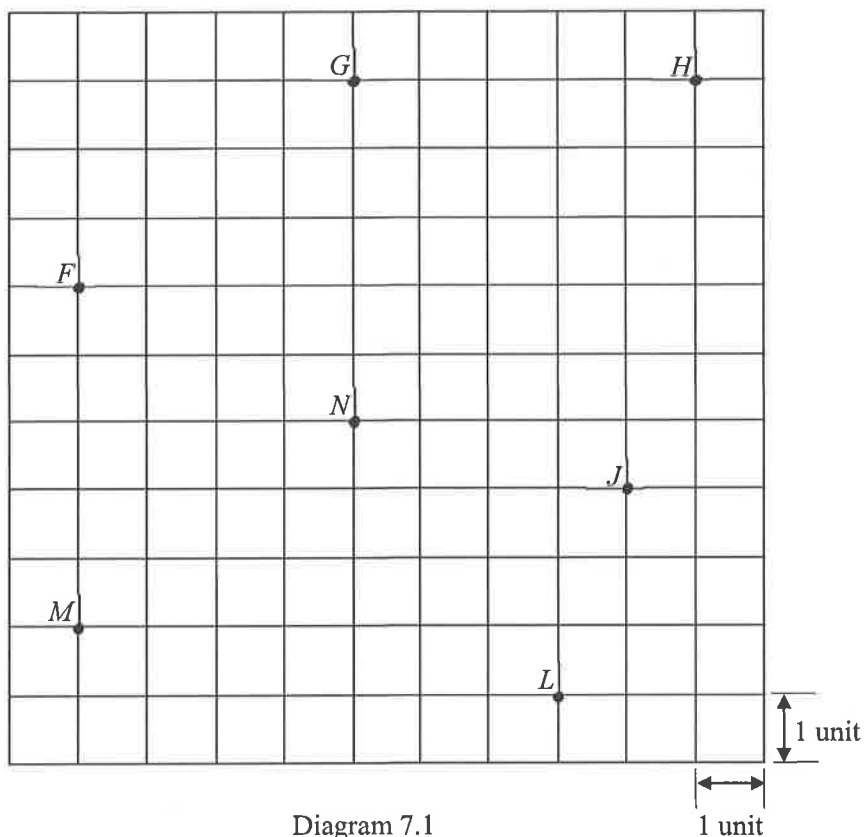
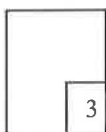


Diagram 7.1
Rajah 7.1

Circle all the points which is 5 units from N
Bulatkan semua titik yang berjarak 5 unit dari N .

[3 marks]
[3 markah]

7(a)



- (b) Table 7.2 shows the data of three cyclist in a race.

Jadual 7.2 menunjukkan data bagi tiga orang pelumba basikal dalam suatu perlumbaan.

Cyclists / <i>Pelumba basikal</i>	Initial speed / <i>Laju awal</i> (m s ⁻¹)	Final speed / <i>Laju akhir</i> (m s ⁻¹)	Time taken / <i>Masa yang diambil</i> (s)
<i>P</i>	12	20	10.4
<i>Q</i>	10	19	10.3
<i>R</i>	11	18	10.8

Table 7.2
Jadual 7.2

Based on Table 7.2, which cyclists accelerate the most? Show your working to support your answer.

Berdasarkan Jadual 7.2, pelumba basikal yang manakah mempunyai pecutan paling tinggi? Tunjukkan jalan penyelesaian untuk menyokong jawapan anda.

[4 marks]
[4 markah]

Answer / *Jawapan* :

7(b)

	4
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For
Examiner's
Use

- (c) Given
Diberi

$$\left(\frac{6 \times 6^{p-1}}{6^3}\right)^2 = 1296$$

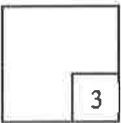
Find the value of p .

Cari nilai p .

Answer / Jawapan :

[3 marks]
[3 markah]

7(c)



For
Examiner's
Use

- 8 (a) In Diagram 8.1, O is the centre of the circle with radius 10 cm and $PR = 12$ cm.
Write TRUE or FALSE in Table 8.1.

*Dalam Rajah 8.1, O ialah pusat bulatan dengan jejari 10 cm dan $PR = 12$ cm.
Tuliskan BETUL atau SALAH dalam Jadual 8.1.*

[3 marks]
[3 markah]

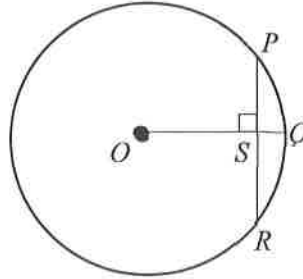


Diagram 8.1
Rajah 8.1

Statement / Pernyataan	True / False Betul / Salah
$PS = SR$	
$OS = 5$ cm	
$SQ = 2$ cm	

Table 8.1
Jadual 8.1

8(a)

	3
--	---

- (b) Diagram 8.2 shows a trapezium $KLMN$. Point A lies on a straight line MN such that $MA : AN = 2 : 3$ and point B lies on a straight line KL .

Rajah 8.2 menunjukkan sebuah trapezium $KLMN$. Titik A berada di atas garis lurus MN yang memenuhi $MA : AN = 2 : 3$ dan titik B berada di atas garis lurus KL .

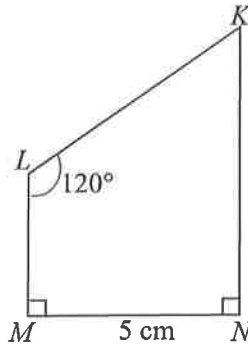


Diagram 8.2
Rajah 8.2

- (i) By using only a ruler and a pair of compasses, construct the trapezium $KLMN$.

Dengan menggunakan hanya pembaris dan jangka lukis, bina trapezium $KLMN$.

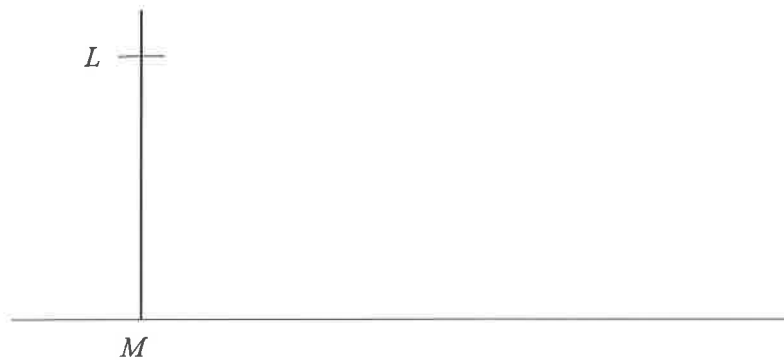
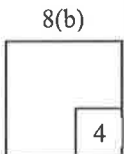
- (ii) Hence, construct the line AB which perpendicular to the line MN .

Seterusnya, bina garis AB yang berserenjang dengan garis MN .

[4 marks]

[4 markah]

Answer / Jawapan:



- (c) Table 8.3 shows the price per kg of mangoes and apples respectively for Shop A and Shop B.

Jadual 8.3 menunjukkan harga per kg masing-masing bagi mangga dan epal untuk Kedai A dan Kedai B.

	Shop A / Kedai A	Shop B / Kedai B
Mango (Price / kg) <i>Mangga (Harga / kg)</i> (in RM)	7	8
Apple (Price / kg) <i>Epal (Harga / kg)</i> (in RM)	5	4

Table 8.3
Jadual 8.3

Adam bought x kg mango and $2y$ kg apple from the shop that offers the cheapest price from Table 8.3. He paid RM 52 in total.

Adam membeli x kg mangga dan $2y$ kg epal dari kedai yang menawarkan harga yang paling murah. Dia membayar sejumlah RM 52.

- (i) Express x in terms of y .

Ungkapkan x dalam sebutan y .

[1 marks]
[1 markah]

- (ii) Given the value of y is 3, find the weight of the mangoes that he bought.

Diberi nilai y adalah 3, cari berat mangga yang dibelinya.

[2 marks]
[2 markah]

Answer / *Jawapan* :

- (i)

- (ii)

8(c)

3

For
Examiner's
Use

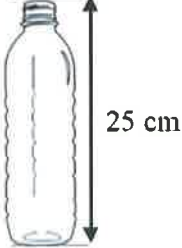
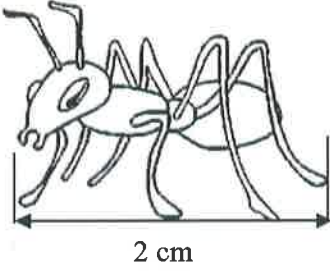

9 (a) Write the actual size of the drawings in the answer space provided.

Tulis saiz sebenar bagi lukisan berikut dalam ruangan jawapan yang disediakan.

[3 marks]

[3 markah]

Answer / Jawapan:

Drawings / <i>Lukisan</i>	Scale / <i>Skala</i>	Actual / <i>Sebenar</i> (cm)
	<p>1 : 1</p>	
	<p>1 : $\frac{1}{10}$</p>	
	<p>1 : 5</p>	

9(a)

	3
--	---

- (b) In Diagram 9.1, a pentagon $PQRST$ is drawn on a grid of equal squares. Q' and R' are the images of Q and R under an enlargement respectively.

Dalam Rajah 9.1, sebuah pentagon $PQRST$ dilukis pada suatu grid segi empat sama yang sama besar. Q' dan R' ialah imej bagi Q dan R masing-masing di bawah suatu pembesaran.

In the answer space on **page 30**,

*Dalam ruangan jawapan di **halaman 30**,*

- (i) mark and label the centre of enlargement as M .
tanda dan labelkan pusat pembesaran sebagai M .

[1 mark]
[1 markah]

- (ii) complete the image of pentagon $PQRST$ under the same enlargement.
lengkapkan imej bagi pentagon $PQRST$ di bawah pembesaran yang sama.

[1 mark]
[1 markah]

- (iii) draw the new image of pentagon $PQRST$ under an enlargement at centre M with the scale factor, $k = -2$.
lukis imej baharu bagi pentagon $PQRST$ di bawah suatu pembesaran pada pusat M dengan faktor skala, $k = -2$.

[2 marks]
[2 markah]

For
Examiner's
Use

Answer / Jawapan :

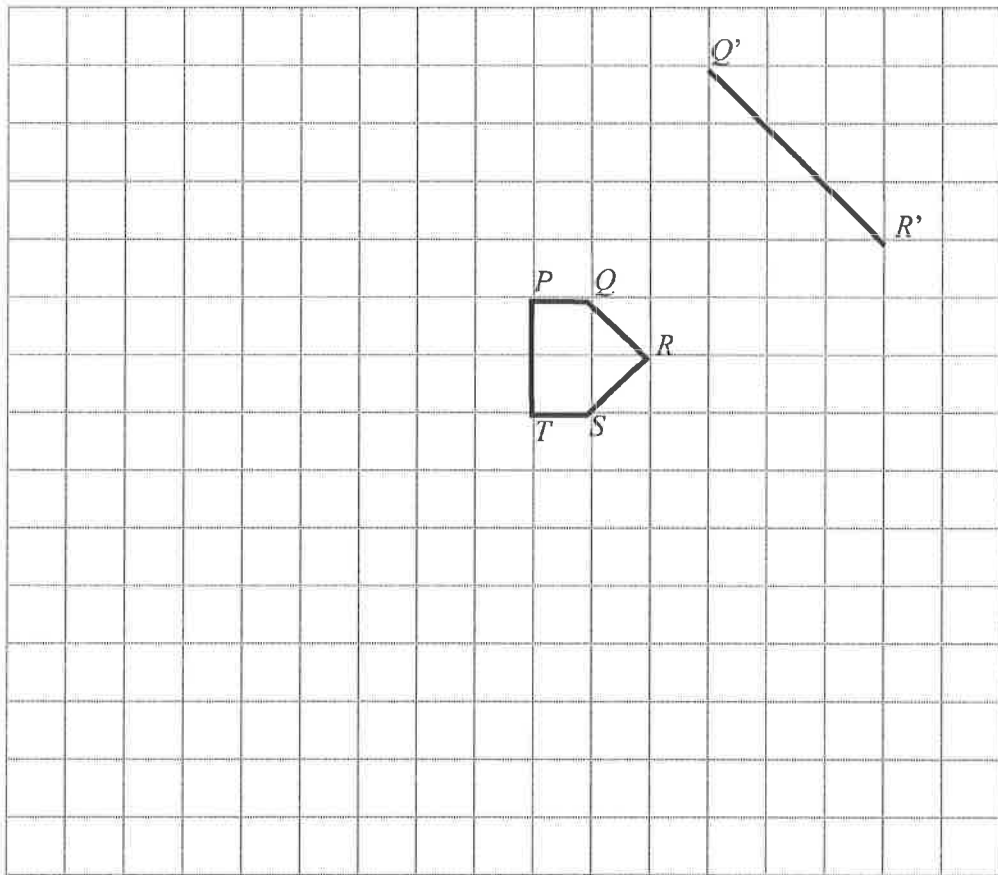
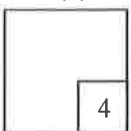


Diagram 9.1
Rajah 9.1

9(b)



- (c) Kembara Club will organize a camping trip. They want to rent w vans and one MPV to go to the camping site. The maximum budget for the transportation is RM 650 and the minimum number of campers is 50. The details of the rental is given in Table 9.2.

Kelab Kembara akan menganjurkan suatu perkhemahan. Mereka ingin menyewa w buah van dan sebuah MPV untuk ke tapak perkhemahan. Perbelanjaan maksimum untuk pengangkutan adalah RM 650 dan bilangan minimum peserta perkhemahan adalah 50 orang. Maklumat sewaan adalah seperti dalam Jadual 9.2.

	Rental price per vehicle / <i>Harga sewaan bagi sebuah kenderaan</i> (RM)	Passenger capacity / <i>Kapasiti penumpang</i>
Van	115	11
MPV	100	7

Table 9.2
Jadual 9.2

- (i) Form two linear inequalities for w .
Bentukkan dua ketaksamaan linear untuk w .
- (ii) Calculate the number of vans they should rent.
Kirakan bilangan van yang perlu disewa oleh mereka.

[2 marks]
[2 markah]

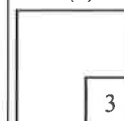
[1 marks]
[1 markah]

Answer / *Jawapan* :

(i)

(ii)

9(c)



For
Examiner's
Use

- 10 (a) In Diagram 10.1, QRS is a straight line. Table 10.1 shows the possible values for trigonometric ratio.

Dalam Rajah 10.1, QRS ialah garis lurus. Jadual 10.1 menunjukkan nilai-nilai yang mungkin bagi nisbah trigonometri.

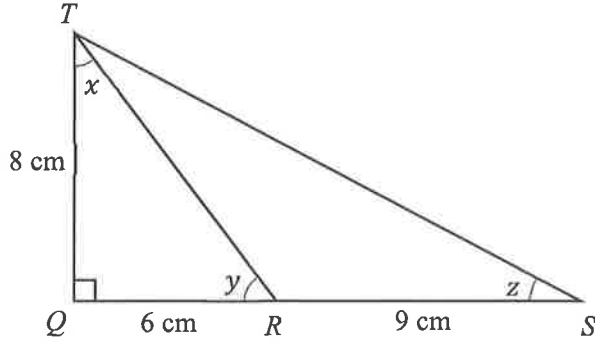


Diagram 10.1
Rajah 10.1

$\frac{9}{17}$	$\frac{8}{15}$	$\frac{4}{3}$	$\frac{3}{4}$
$\frac{4}{5}$	$\frac{3}{5}$	$\frac{15}{17}$	$\frac{8}{17}$

Table 10.1
Jadual 10.1

Based on the values in Table 10.1, complete Table 10.2 below.

Berdasarkan nilai – nilai dalam Jadual 10.1, lengkapkan Jadual 10.2 di bawah.

[3 marks]

[3 markah]

Answer / Jawapan :

$\sin x$	$\tan y$	$\cos z$

Table 10.2
Jadual 10.2

10(a)

	3
--	---

- (b) Irfan sells trousers in different sizes. Diagram 10.2 shows the different sizes, in inch of the trousers that he sold.

Irfan menjual seluar yang berlainan saiz. Rajah 10.2 menunjukkan seluar berlainan saiz, dalam ukuran inci yang telah dijual olehnya.

28	28	40	32	44	33	38	38
41	42	42	29	30	32	34	32
31	32	34	44	32	36	37	34

Diagram 10.2
Rajah 10.2

- (i) Find the value of mode and the value of median for the data.

Cari nilai bagi mod dan median untuk data tersebut.

[2 marks]

[2 markah]

- (ii) Irfan wants to order more trousers to cater his customers need. Based on your answer in (b)(i), which suitable measurement that best suits Irfan's needs? Mode or median? State your reason.

Irfan ingin menempah lebih banyak stok seluar untuk memenuhi permintaan pelanggannya. Berdasarkan jawapan anda dalam (b)(i), pengukuran yang manakah paling sesuai untuk memenuhi keperluan Irfan? Mod atau median? Nyatakan sebab anda.

[2 marks]

[2 markah]

Answer / Jawapan :

(i)

(ii)

10(b)

4

For
Examiner's
Use

- (c) Diagram 10.3 shows a graph of the number of customer at a *nasi lemak* stall within eight hours of operations. The number of customers, y at x pm, is given by $y = -x^2 + 14x - 33$.

Rajah 10.3 menunjukkan suatu graf bilangan pelanggan di suatu gerai nasi lemak dalam masa lapan jam waktu beroperasinya. Bilangan pelanggan, y pada x pm, diberikan oleh persamaan $y = -x^2 + 14x - 33$.

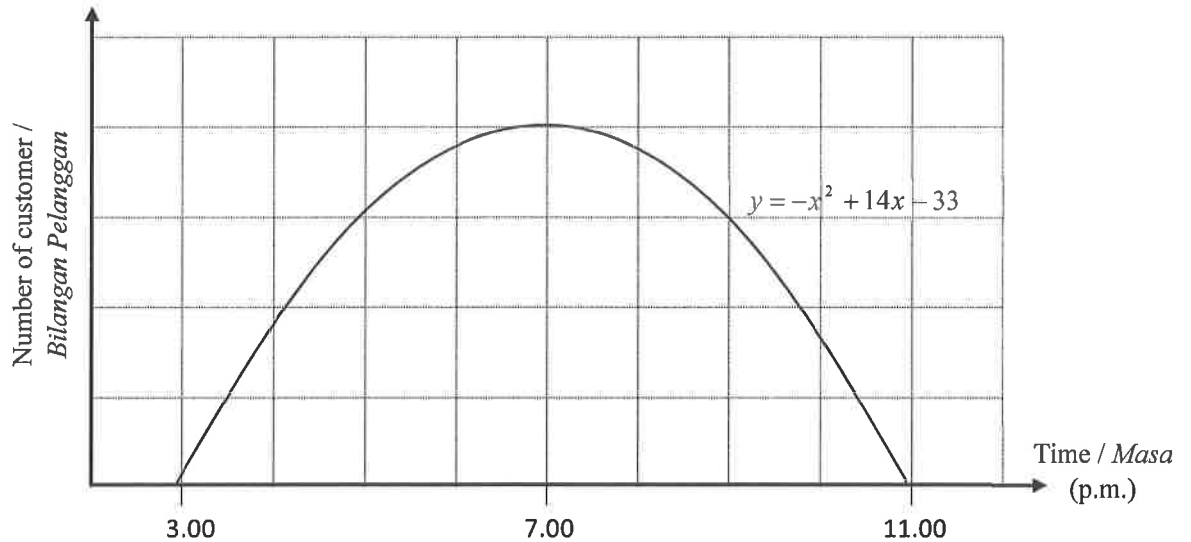


Diagram 10.3
Rajah 10.3

Based on the graph,
Berdasarkan graf,

- (i) state the peak hour.
nyatakan waktu puncak.
- (ii) find the number of customers that came at 5.00 p.m.
cari bilangan pelanggan yang datang pada jam 5.00 petang.

[1 mark]
[1 markah]

[2 marks]
[2 markah]

Answer / Jawapan :

- (i)

(ii)

10(c)

	3
--	---

**END OF QUESTION PAPER
KERTAS SOALAN TAMAT**

TERHAD



PEPERIKSAAN AKHIR TINGKATAN 3

PT3 2017

UJIAN BERTULIS

Ogos

2 Jam

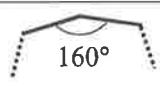


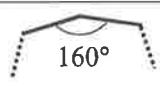


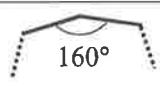


50

Mathematics

PANDUAN PENSKORAN

**MARKING SCHEME FOR
PEPERIKSAAN AKHIR TINGKATAN 3
PT3 2017**

QUESTION		SOLUTIONS AND MARKS SCHEME	SUB MARKS		TOTAL MARKS
1	(a)	D	N1	1	10
	(b) (i)	25%	N1	1	
	(ii)	$\frac{1.8}{36} \times 100\%$ 5%	K1 N1	2	
	(c) (i)	25×6 or 150 $2(100 \times 8) \div 150$ 106.67 or $106\frac{2}{3}$ 106	K1 K1 N1 N1	4	
	(ii)	$\frac{2}{3} \times 150$ or 16000 – 15900 or equivalent 100	K1 N1	2	
2	(a)	X X ✓	P1 P1 P1	3	10
	(b) (i)	Could not attends on time. 11.00 a.m.	N1 K1	2	
	(ii)	Flight Y 10.20 a.m.	K1 N1	2	
	(c) (i)	264 & 312 or 312 & 408 or 408 & 456 or any pair Note : $x \times 2 \times 2 \times 2 \times 3, \{x : x > 7 \& x \text{ is a prime number}\}$	N1, N1	3	
	(ii)	408	N1		
3	(a)	33 120 – 33 87	K1 K1 N1	3	10
	(b)	$CD = 48$ $BH = 16$	K1 K1	4	
		1728 – 336 1392	K1 N1		
	(c)	$j = 73^\circ$ $127^\circ - 73^\circ$ 54°	P1 K1 N1	3	

4	(a)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Regular polygon <i>Poligon sekata</i></th> <th style="text-align: center;">Number of sides <i>Bilangan sisi</i></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"> 160°</td> <td style="text-align: center;">12</td> </tr> <tr> <td style="text-align: center;"> 150°</td> <td style="text-align: center;">15</td> </tr> <tr> <td style="text-align: center;"> 156°</td> <td style="text-align: center;">16</td> </tr> </tbody> </table>	Regular polygon <i>Poligon sekata</i>	Number of sides <i>Bilangan sisi</i>	 160°	12	 150°	15	 156°	16	N1 N1 N1	3	10
Regular polygon <i>Poligon sekata</i>	Number of sides <i>Bilangan sisi</i>												
 160°	12												
 150°	15												
 156°	16												
	(b) (i)	$\frac{540 - 170}{369}$	K1 N1	2									
	(ii)	$\left. \begin{aligned} R &= -1.5 \text{ or } -\frac{3}{2} \\ S &= 3 \\ T &= 7.5 \text{ or } \frac{15}{2} \end{aligned} \right\}$ $\left(-\frac{3}{2} - 3 \right) \div \left(2(3) - \frac{15}{2} \right) \text{ or } (-1.5 - 3) \div (2(3) - 7.5)$	P1 K1 N1	3									
	(c)	$(x+3y)(x+3y) \text{ or } (x+3y)^2 \text{ or equivalent}$ Length = $(x+3y)$	K1 N1	2									
5	(a)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="text-align: center;">Square / <i>Segi empat sama</i></td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">Trapezium / <i>Trapezium</i></td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">Rectangle / <i>Segi empat tepat</i></td> <td style="text-align: center;">2</td> </tr> </tbody> </table>	Square / <i>Segi empat sama</i>	1	Trapezium / <i>Trapezium</i>	4	Rectangle / <i>Segi empat tepat</i>	2	P1 P1 P1	3	10		
Square / <i>Segi empat sama</i>	1												
Trapezium / <i>Trapezium</i>	4												
Rectangle / <i>Segi empat tepat</i>	2												
	(b)	Solve simultaneous linear equations $x = 2$ $y = 2$ $x = y$	K1 N1 N1 N1	4									
	(c)	Refer appendix Correct locus M Correct locus N Mark points of intersection correctly Notes: Do not accept dotted line	K1 K1 N1	3									

6	(a)		P1 P1 P1	3	10
	(b)	$2(6x \times y)$ or $2(7x \times 6x)$ or $(7x \times y)$ or $2(6x \times y) + 2(7x \times 6x) + (7x \times y)$ or $\frac{1}{2} \left(2 \times \frac{22}{7} \times \left(\frac{7}{2}x \right)^2 \right)$ or $\frac{1}{2} \left(\frac{22}{7} \times \left(\frac{7}{2}x \right)^2 \times y \right)$ or $\frac{1}{2} \left[\frac{22}{7} \times \left(\frac{7}{2}x \right)^2 \times y + 2 \times \frac{22}{7} \times \left(\frac{7}{2}x \right)^2 \right]$ $12xy + 84x^2 + 7xy$ or $\frac{77}{2}x^2 + 11xy$ $(12xy + 84x^2 + 7xy) + \left(\frac{77}{2}x^2 + 11xy \right)$ $30xy + 122\frac{1}{2}x^2$ or $30xy + \frac{245}{2}x^2$	K1 K1 K1 N1	4	
	(c)	Time = $\frac{10}{60}$ or $\frac{1}{6}$ Retardation = $\frac{250}{\left(\frac{10}{60} \right)}$ 1500	P1 K1 N1	3	
7	(a)	G L M	N1 N1 N1	3	10
	(b)	$\frac{20-12}{10.4}$ or 0.77 $\frac{19-10}{10.3}$ or 0.87 $\frac{18-11}{10.8}$ or 0.65 Cyclist Q	K1 K1 K1 N1	4	
	(c)	$6^2 \times 6^{2p-2}$ or 6^6 or 6^4 or equivalent $2+2(p-1) - 6 = 4$ or $1+p-1-3 = 2$ or equivalent 5	P1 K1 N1	3	

8	(a)	True False True	P1 P1 P1	3	10						
	(b)	Refer appendix Construct 120° correctly Construct 90° correctly Complete the diagram Construct line AB correctly Note: ignore label	K1 K1 K1 N1	4							
	(c) (i)	$x = \frac{52 - 8y}{7}$	N1	3							
	(ii)	$7x = 28$ or equivalent 4	K1 N1								
9	(a)	25 0.2 60	P1 P1 P1	3	10						
	(b) (i)	Refer appendix Mark and label the centre of enlargement correctly.	N1	1							
	(ii)	Image drawn correctly	N1	1							
	(iii)	Image drawn correctly Note: two sides drawn correctly, N1	N2	2							
	(c) (i)	$115w + 100 \leq 650$ $11w + 7 \geq 50$	N1 N1	2							
	(ii)	4	N1	1							
10	(a)	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>$\sin x$</th> <th>$\tan y$</th> <th>$\cos z$</th> </tr> </thead> <tbody> <tr> <td>$\frac{3}{5}$</td> <td>$\frac{4}{3}$</td> <td>$\frac{15}{17}$</td> </tr> </tbody> </table>	$\sin x$	$\tan y$	$\cos z$	$\frac{3}{5}$	$\frac{4}{3}$	$\frac{15}{17}$	P1 P1 P1	3	10
	$\sin x$	$\tan y$	$\cos z$								
	$\frac{3}{5}$	$\frac{4}{3}$	$\frac{15}{17}$								
(b) (i)	Median = 34 Mode = 32	N1 P1	2								
(ii)	Mode Because the highest demand or the most popular or equivalent	P1 N1	2								
	(c) (i)	7.00 p.m.	P1	1							
	(ii)	$y = -(5)^2 + 14(5) - 33$ 12	K1 N1	2							

APPENDIX

5(c)

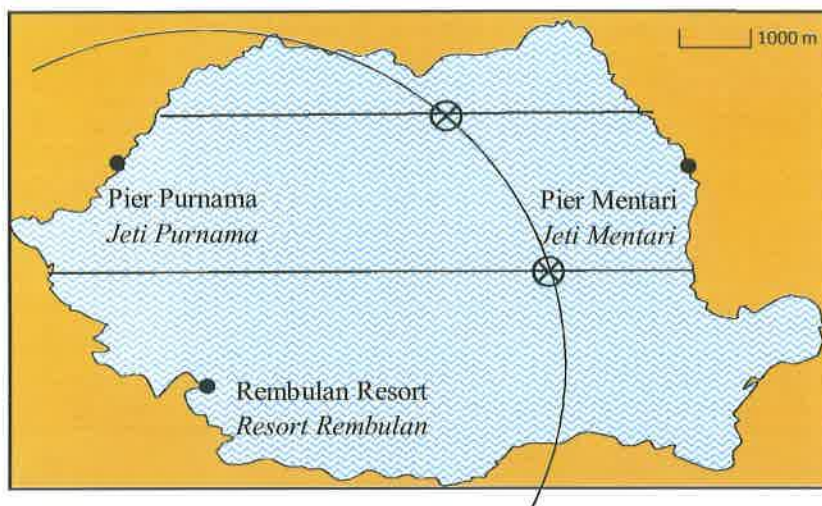
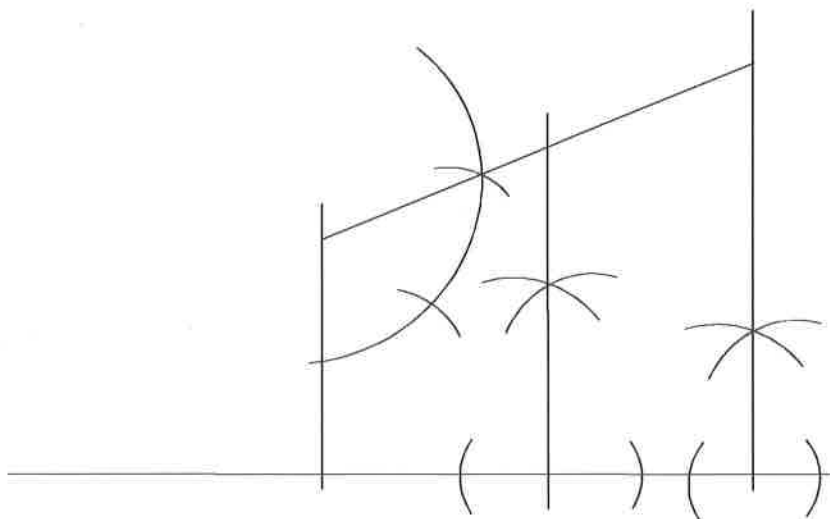


Diagram 5.3
Rajah 5.3

Notes: Accept locus within the lake area

8(b)



APPENDIX

9(b)

