

SULIT
1449/1
Matematik
Kertas 1
Ogos/September
2016

1449/1



MAKTAB RENDAH SAINS MARA

PEPERIKSAAN AKHIR SIJIL PENDIDIKAN MRSM 2016

MATEMATIK

Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas soalan ini adalah dalam dwibahasa.*
2. *Soalan dalam Bahasa Inggeris mendahului soalan yang sepadan dalam Bahasa Melayu.*
3. *Calon dikehendaki membaca maklumat di halaman belakang kertas soalan ini.*

Kertas soalan ini mengandungi 36 halaman bercetak

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 menjawab soalan. Simbol-simbol yang diberi adalah yang biasa digunakan.

RELATIONS
PERKAITAN

- | | |
|---|---|
| <p>1 $a^m \times a^n = a^{m+n}$</p> | <p>10 Pythagoras Theorem
<i>Teorem Pithagoras</i>
$c^2 = a^2 + b^2$</p> |
| <p>2 $a^m \div a^n = a^{m-n}$</p> | |
| <p>3 $(a^m)^n = a^{mn}$</p> | <p>11 $P(A) = \frac{n(A)}{n(S)}$</p> |
| <p>4 $A^{-1} = \frac{1}{ad-bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$</p> | <p>12 $P(A') = 1 - P(A)$</p> |
| <p>5 Distance / jarak
$= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$</p> | <p>13 $m = \frac{y_2 - y_1}{x_2 - x_1}$</p> |
| <p>6 Midpoint / Titik tengah
$(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$</p> | <p>14 $m = -\frac{y\text{-intercept}}{x\text{-intercept}}$
$m = -\frac{\text{pintasan } y}{\text{pintasan } x}$</p> |
| <p>7 Average speed = $\frac{\text{distance travelled}}{\text{time taken}}$
<i>Purata laju = $\frac{\text{jarak yang dilalui}}{\text{masa yang diambil}}$</i></p> | |
| <p>8 Mean = $\frac{\text{sum of data}}{\text{number of data}}$

$\text{Min} = \frac{\text{hasil tambah nilai data}}{\text{bilangan data}}$</p> | |
| <p>9 Mean = $\frac{\text{sum of (midpoint} \times \text{frequency)}}{\text{sum of frequencies}}$

$\text{Min} = \frac{\text{hasil tambah (nilai titik tengah kelas} \times \text{kekerapan)}}{\text{hasil tambah kekerapan}}$</p> | |

SHAPES AND SPACE
BENTUK DAN RUANG

- 1 Area of trapezium = $\frac{1}{2} \times \text{sum of parallel sides} \times \text{height}$
Luas trapezium = $\frac{1}{2} \times \text{hasil tambah dua sisi selari} \times \text{tinggi}$
- 2 Circumference of circle = $\pi d = 2\pi r$
Lilitan bulatan = $\pi d = 2\pi j$
- 3 Area of circle = πr^2
Luas bulatan = πj^2
- 4 Curved surface area of cylinder = $2\pi rh$
Luas permukaan melengkung silinder = $2\pi jt$
- 5 Surface area of sphere = $4\pi r^2$
Luas permukaan sfera = $4\pi j^2$
- 6 Volume of right prism = cross sectional area \times length
Isi padu prisma tegak = luas keratan rentas \times panjang
- 7 Volume of cylinder = $\pi r^2 h$
Isi padu silinder = $\pi j^2 t$
- 8 Volume of cone = $\frac{1}{3} \pi r^2 h$
Isi padu kon = $\frac{1}{3} \pi j^2 t$
- 9 Volume of sphere = $\frac{4}{3} \pi r^3$
Isi padu sfera = $\frac{4}{3} \pi j^3$
- 10 Volume of right pyramid = $\frac{1}{3} \times \text{base area} \times \text{height}$
Isi padu piramid tegak = $\frac{1}{3} \times \text{luas tapak} \times \text{tinggi}$
- 11 Sum of interior angles of a polygon
Hasil tambah sudut pedalaman poligon
 $= (n - 2) \times 180^\circ$

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$$12 \quad \frac{\text{arc length}}{\text{circumference of circle}} = \frac{\text{angle subtended at centre}}{360^\circ}$$

$$\frac{\text{panjang lengkok}}{\text{lilitan bulatan}} = \frac{\text{sudut pusat}}{360^\circ}$$

$$13 \quad \frac{\text{area of sector}}{\text{area of circle}} = \frac{\text{angle subtended at centre}}{360^\circ}$$

$$\frac{\text{luas sektor}}{\text{luas bulatan}} = \frac{\text{sudut pusat}}{360^\circ}$$

$$14 \quad \text{Scale factor, } k = \frac{PA'}{PA}$$

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

$$15 \quad \text{Area of image} = k^2 \times \text{area of object}$$

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

- 1 Round off 0.09098 correct to three significant figures.

Bundarkan 0.09098 betul kepada tiga angka bererti.

- A 0.090
- B 0.091
- C 0.0909
- D 0.0910

- 2 Express $\frac{0.00028 \times (2 \times 10)^2}{0.7}$ in standard form.

Ungkapkan $\frac{0.00028 \times (2 \times 10)^2}{0.7}$ dalam bentuk piawai.

- A 8×10^2
- B 8×10^{-2}
- C 1.6×10^1
- D 1.6×10^{-1}

- 3 A cube has sides of 36 cm each. Find the total surface area, in m^2 , of the cube.

Sebuah kubus mempunyai sisi berukuran 36 cm. Cari jumlah luas permukaan, dalam m^2 , kubus itu.

- A 7.776×10^{-3}
- B 7.776×10^{-1}
- C 7.776×10^1
- D 7.776×10^3

4. Aimi plans to prepare corn flavoured jelly for Entrepreneur Day. She uses an open cylindrical pot with 28 cm in diameter and 20 cm in height. Find the maximum volume, in cm^3 , of the jelly that can be prepared.

Aimi bercadang untuk menyediakan agar-agar berperisa jagung pada Hari Keusahawanan. Dia menggunakan bekas silinder terbuka berdiameter 28 cm dan tinggi 20 cm. Cari isipadu maksimum, dalam cm^2 , agar – agar yang boleh disediakan.

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

- A 8.8×10^3
B 1.232×10^4
C 3.52×10^4
D 4.928×10^4
5. Given $1101_8 = 8^{k-1} + 8^2 + 1$, the value of k is
Diberi $1101_8 = 8^{k-1} + 8^2 + 1$, nilai untuk k ialah
- A 2
B 3
C 4
D 5
6. Given $1110011_2 - k_2 = 11111_2$, find the value of k .
Diberi $1110011_2 - k_2 = 11111_2$, cari nilai k .
- A 11001000
B 10010010
C 1100100
D 1010100

7 In Diagram 1, $PQRST$ is a pentagon.

Dalam Rajah 1, $PQRST$ ialah pentagon.

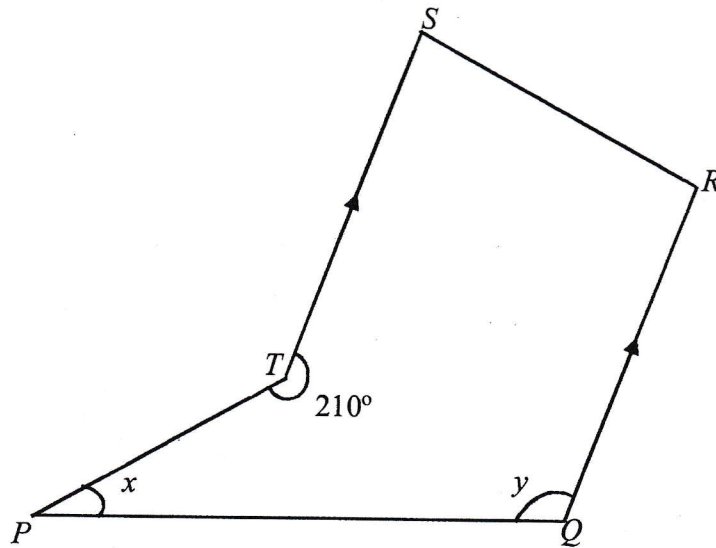


Diagram 1
Rajah 1

Find the value of $x + y$.

Cari nilai $x + y$.

- A 150°
- B 165°
- C 180°
- D 210°

8 Diagram 2 shows a hexagon $PQRSTU$. TUV is a straight line.

Rajah 2 menunjukkan sebuah heksagon $PQRSTU$. TUV ialah garis lurus.

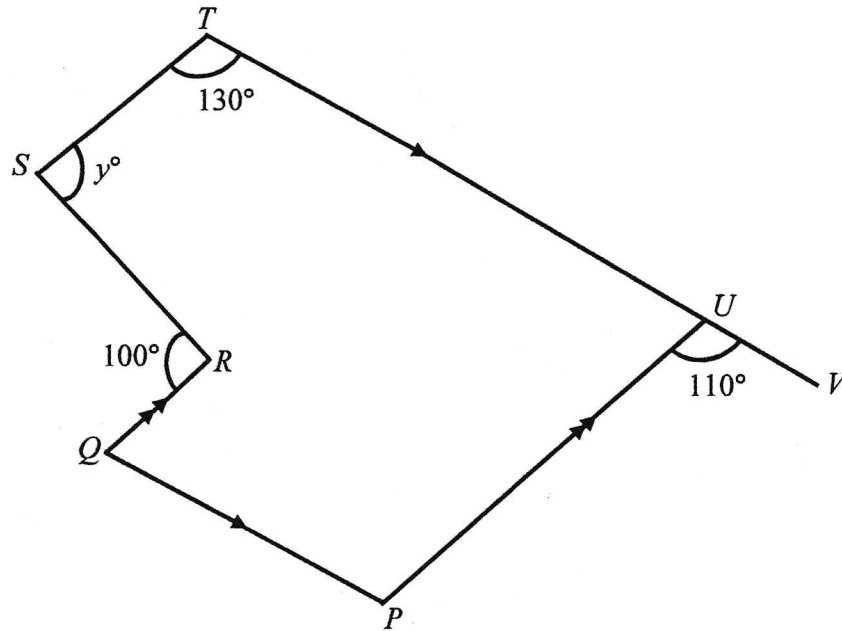


Diagram 2
Rajah 2

Find the value of y .

Cari nilai y .

- A 50
- B 80
- C 100
- D 110

9 In Diagram 3, LMN is a straight line and JKL is a tangent to the circle KMN at K .

Dalam Rajah 3, LMN ialah garis lurus dan JKL ialah tangen kepada bulatan KMN di K .

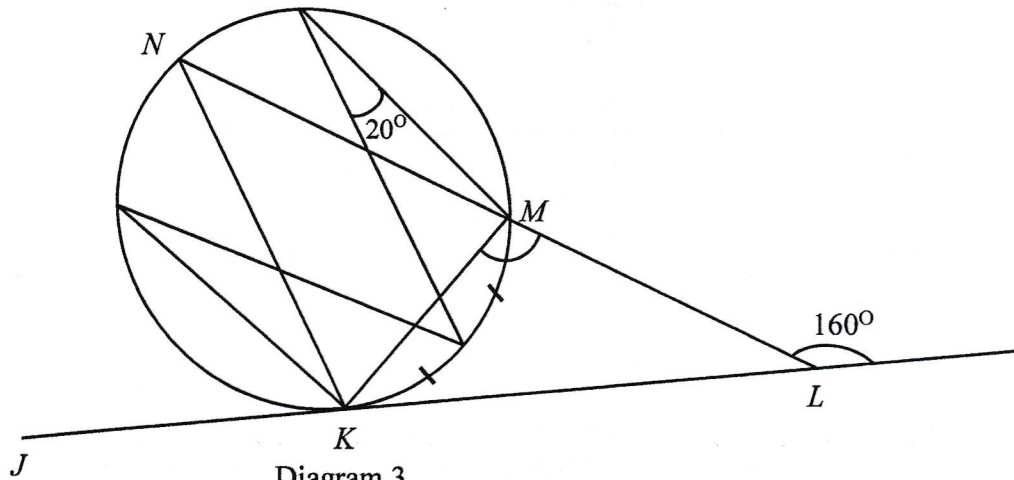


Diagram 3
Rajah 3

Find the value of $\angle KML$.

Cari nilai $\angle KML$.

- A 100°
- B 110°
- C 120°
- D 140°

10 In Diagram 4, triangle PQS and triangle RTS are congruent.

Dalam Rajah 4, segitiga PQS dan segitiga RTS adalah kongruen.

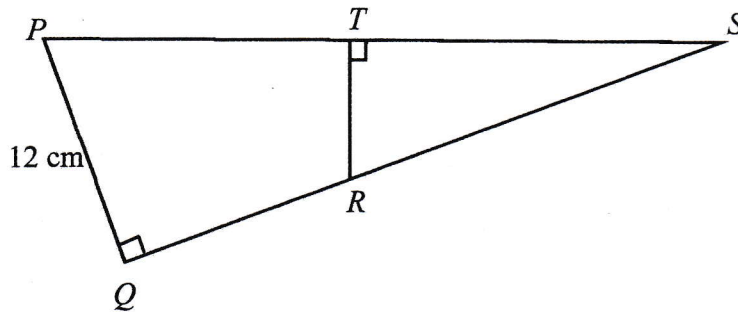


Diagram 4
Rajah 4

It is given that $TR = 6$ cm and area of $PQRT = 60$ cm², calculate the area, in cm², of triangle RTS .

Diberi bahawa $TR = 6$ cm dan luas $PQRT = 60$ cm², hitung luas dalam cm², bagi segitiga RTS .

- A 15
- B 20
- C 30
- D 60

- 11 Diagram 5 shows two triangles, M and N , drawn on a square grids. Triangle N is the image of triangle M under a clockwise rotation of 90° .

Rajah 5 menunjukkan dua buah segitiga, M dan N , dilukis di atas grid segiempat sama. Segitiga N ialah imej bagi segitiga M di bawah satu putaran 90° ikut arah jam.

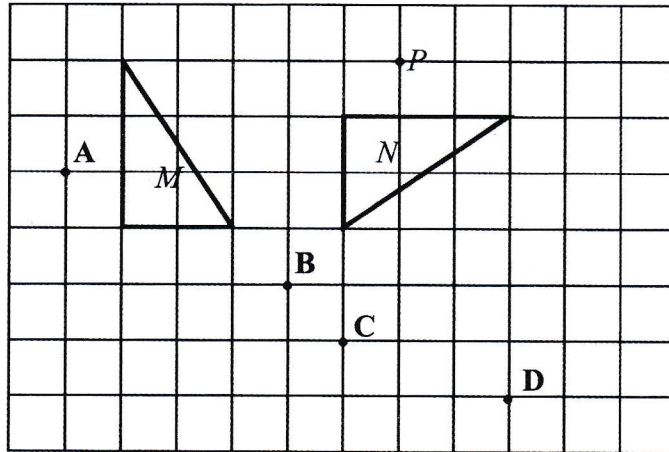


Diagram 5
Rajah 5

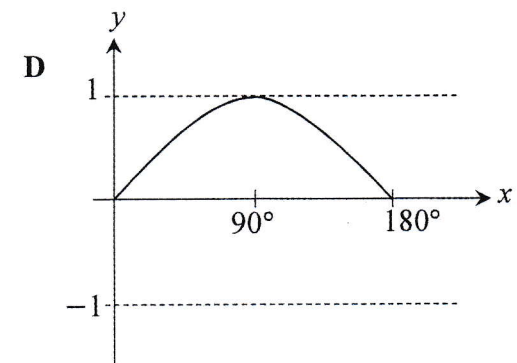
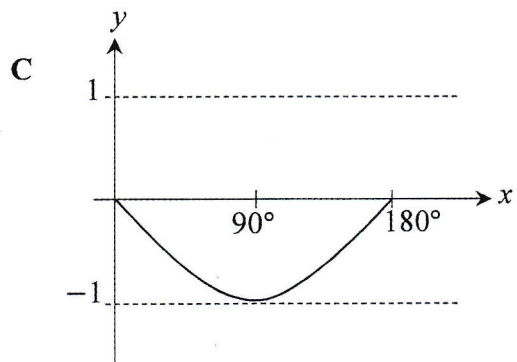
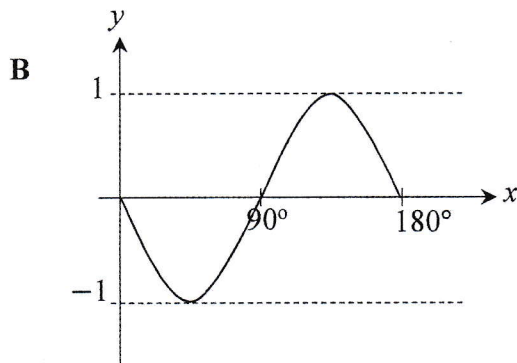
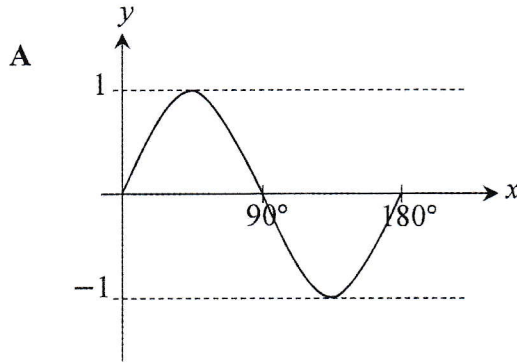
Which of the points, **A**, **B**, **C** or **D**, is the image of point P under the same rotation?

Antara titik **A**, **B**, **C** dan **D**, yang manakah imej bagi titik P di bawah putaran yang sama?

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12 Which of the following graphs represents $y = -\sin x$ for $0^\circ \leq x \leq 180^\circ$?

Antara yang berikut, yang manakah mewakili graf $y = -\sin x$ bagi $0^\circ \leq x \leq 180^\circ$?



13 Diagram 6 shows a triangle EFG .

Rajah 6 menunjukkan segitiga EFG .

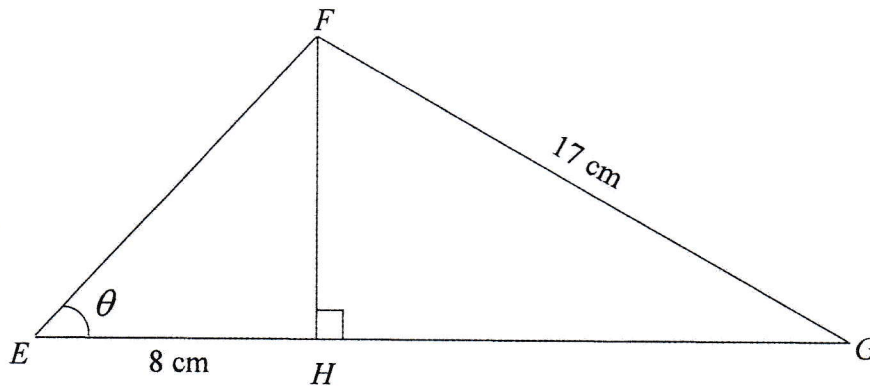


Diagram 6
Rajah 6

Given $\tan \theta = 1$, find the value of $\cos \angle FGH$.

Diberi $\tan \theta = 1$, cari nilai kos $\angle FGH$.

A $-\frac{8}{17}$

B $\frac{8}{17}$

C $-\frac{15}{17}$

D $\frac{15}{17}$

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SULIT

- 14 Diagram 7 shows a cube. Point K and point L are the midpoints of straight line QS and straight line UW respectively.

Rajah 7 menunjukkan sebuah kubus. Titik K dan titik L ialah masing-masing titik tengah bagi garis lurus QS dan garis lurus UW .

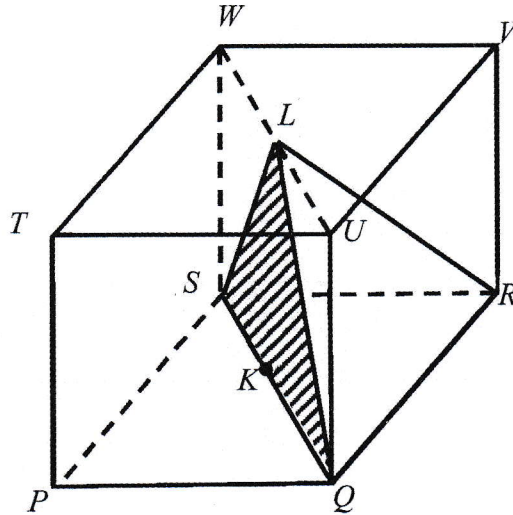


Diagram 7
Rajah 7

Name the angle between the line LR and the plane LSQ .

Namakan sudut di antara garis LR dengan satah LSQ .

- A $\angle KLR$
- B $\angle KRL$
- C $\angle RQL$
- D $\angle RLS$

- 15 Diagram 8 shows a vertical flagpole JK . Mary stands at point L which is 50 metres from point J .

Rajah 8 menunjukkan sebuah tiang bendera tegak JK . Mary berdiri pada titik L yang sejauh 50 meter dari titik J .

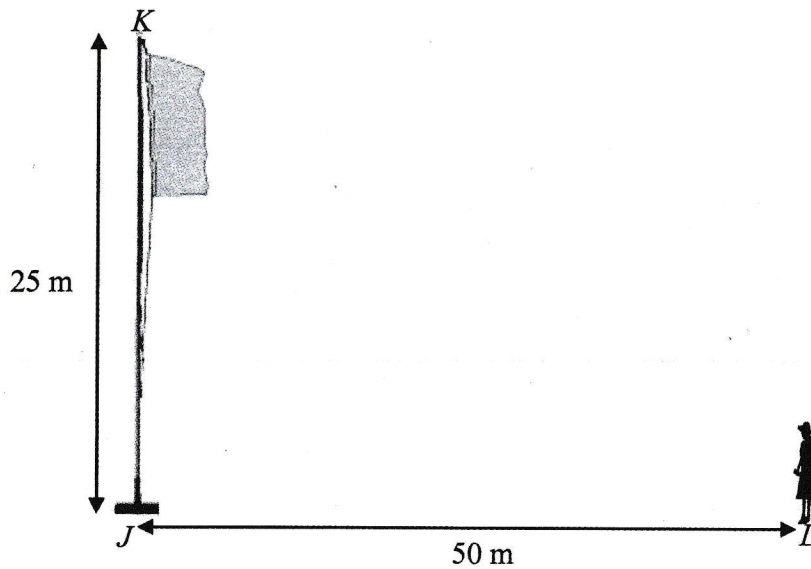


Diagram 8
Rajah 8

Given that Mary's eye level is 1.6 m from horizontal ground.
Find the angle of elevation point K from the Mary's eye level.

*Diberi bahawa aras mata Mary adalah 1.6 m mengufuk dari tanah.
Cari sudut dongakan bagi titik K dari aras mata Mary.*

- A 25.08°
- B 26.57°
- C 28.01°
- D 64.92°

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SULIT

- 16 Diagram 9 shows an aeroplane which is about to land at the Kuala Lumpur International Airport (KLIA). In order to land, a pilot must maintain the right altitude and rate of descent during the approach.

Rajah 9 menunjukkan sebuah kapal terbang akan mendarat di Lapangan Terbang Antarabangsa Kuala Lumpur (KLIA). Untuk mendarat, juruterbang mesti mengekalkan altitud dan kadar penurunan kapal terbang yang betul semasa menghampiri landasan.

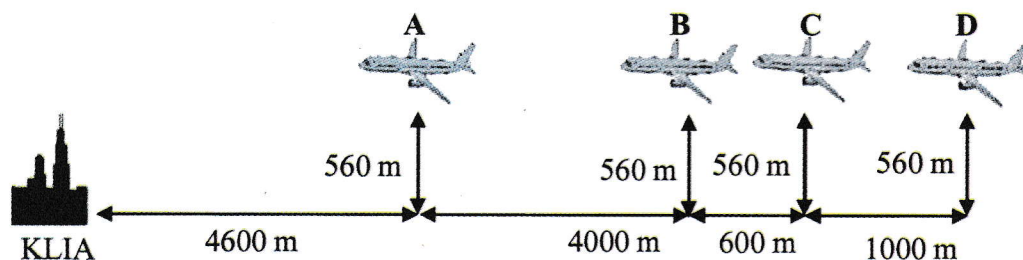


Diagram 9
Rajah 9

The altitude of the aeroplane is now at 560 m above the ground. The suitable angle of depression of the aeroplane to land towards the airport is 3.5° to 4° . Which is the best position, A, B, C or D for the pilot to start descending the aeroplane towards the runway.

Ketinggian kapal terbang sekarang adalah pada 560 m dari darat. Sudut tunduk dari kapal terbang ke lapangan terbang yang sesuai untuk mendarat adalah dari 3.5° ke 4° . Kedudukan manakah antara A, B, C atau D yang paling sesuai untuk juruterbang mula menurunkan kapal terbang ke atas landasan.

17 Diagram 10 shows location of Bayu Island, Mutiara Island and Hitam Island.

Rajah 10 menunjukkan lokasi Pulau Bayu, Pulau Mutiara dan Pulau Hitam.

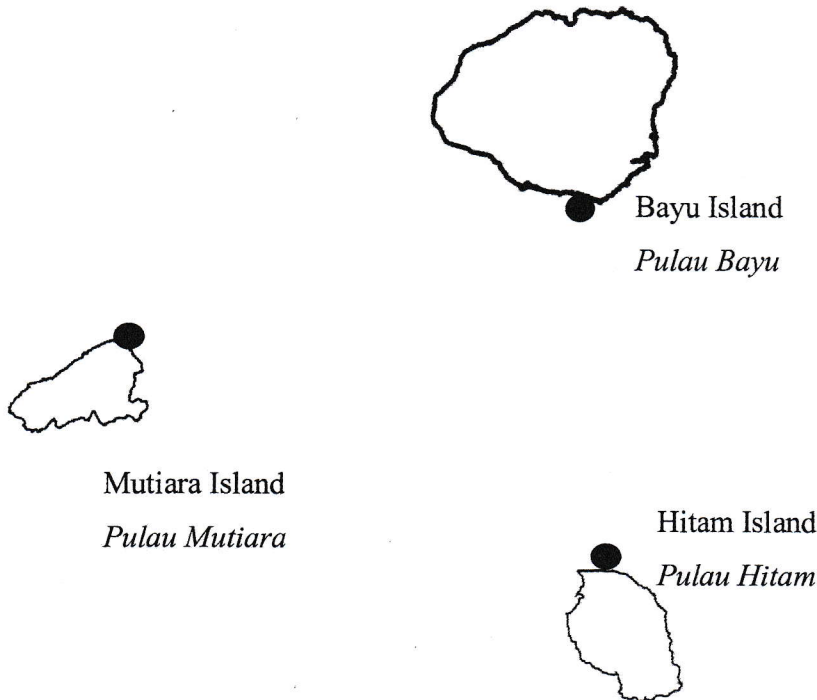


Diagram 10
Rajah 10

A boat sails to south from Bayu Island to Mutiara Island which is located 30 nautical miles away. Then the boat continues its journey to Hitam Island at a bearing of 070° . Hitam Island is located 30 nautical miles away from Bayu Island. What would the bearing of the Bayu Island be from the Hitam Island if the boat wishes to go back to Bayu Island?

Sebuah bot belayar ke selatan dari Pulau Bayu ke Pulau Mutiara yang terletak sejauh 30 batu nautika. Kemudian bot tersebut meneruskan perjalanannya menuju ke Pulau Hitam pada bearing 070° . Pulau Hitam terletak 30 batu nautika dari Pulau Bayu. Apakah bearing Pulau Bayu dari Pulau Hitam jika bot tersebut ingin kembali semula ke Pulau Bayu?

- A 140°
- B 250°
- C 290°
- D 320°

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- 18 Given H and K are two points on the surface of the earth and the latitude of H is 65°S . Given K is located 15° due north of H , find the latitude of K .

*H dan K ialah dua titik pada permukaan bumi dan latitud bagi H ialah 65°S .
Diberi K terletak 15° ke utara H, cari latitud bagi K.*

A 50°N
 50°U

B 50°S
 50°S

C 80°N
 80°U

D 80°S
 80°S

19 $2x(2x - 3y) - (2x - 3y)^2 =$

A $6xy - 9y^2$

B $6xy + 9y^2$

C $-6xy - 9y^2$

D $-6xy + 9y^2$

20 Simplify $\frac{2x^2 - 8}{x^2 - y^2} \div \frac{x^2 - 4x + 4}{2x - 2y}$

Ringkaskan $\frac{2x^2 - 8}{x^2 - y^2} \div \frac{x^2 - 4x + 4}{2x - 2y}$

A $\frac{4(x+2)}{(x+y)(x-2)}$

B $\frac{4(x+2)}{(x-y)(x-2)}$

C $\frac{2(2x+1)}{(x+y)(x-2)}$

D $\frac{2(2x+1)}{(x-y)(x-2)}$

21 Given $R(T^2 - 3) = T^2 + 1 - R$, express T in terms of R .

Diberi $R(T^2 - 3) = T^2 + 1 - R$, ungkapkan T dalam sebutan R .

A $T = \sqrt{\frac{4-R}{R-1}}$

B $T = \sqrt{\frac{1-2R}{R-1}}$

C $T = \sqrt{\frac{1+2R}{R-1}}$

D $T = \sqrt{\frac{1-4R}{R-1}}$

- 22 Syarikat Teguh plans to build two buildings. The total number of floor of the two buildings is 64. The difference between the number of floors of the two buildings is the square of 4. What is the number of floors of each building?

Syarikat Teguh merancang untuk membina dua buah bangunan. Jumlah bilangan tingkat bagi dua bangunan ialah 64. Beza antara bilangan tingkat bagi kedua-dua bangunan itu ialah kuasa dua bagi 4.

Berapakah bilangan tingkat bagi setiap bangunan?

- A 33 and/dan 31
- B 34 and/dan 30
- C 40 and/dan 24
- D 36 and/dan 28

- 23 Given that $S^{-3} = 8$, find the value of S .

Diberi bahawa $S^{-3} = 8$, cari nilai S .

- A -2
- B $-\frac{1}{2}$
- C $\frac{1}{2}$
- D 2

24 Simplify $\frac{m^7 \times (8e^3)^{\frac{1}{3}}}{(2m^{-2}e^3)^2}$

Ringkaskan $\frac{m^7 \times (8e^3)^{\frac{1}{3}}}{(2m^{-2}e^3)^2}$

A $\frac{m^{11}}{2e^5}$

B $\frac{m^3}{2e^5}$

C $\frac{2m^3}{e^5}$

D $\frac{2m^{11}}{e^5}$

- 25 Table 1 shows the cost for an open marathon competition for adults which is conducted by Student Representative Council of MRSM Semporna.

Jadual 1 menunjukkan kos untuk pertandingan marathon terbuka dewasa yang akan dianjurkan oleh Badan Wakil Pelajar MRSM Semporna.

Particulars <i>Perkara</i>	T-shirt per participant <i>Kemeja-T setiap peserta</i>	Food & Drinks per participant <i>Makanan & Minuman setiap peserta</i>	Prize <i>Hadiah</i>
Cost <i>Kos</i>	RM12.00	RM5.00	RM1500.00

Table 1
Jadual 1

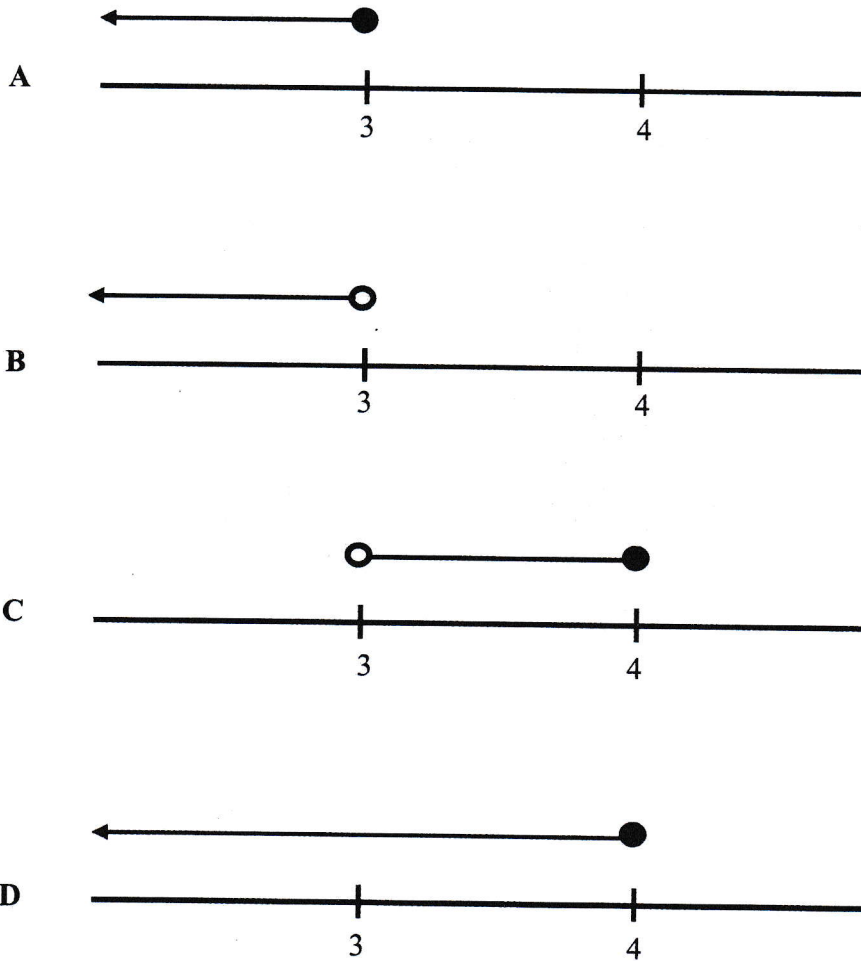
If the registration fee for a participant is RM35.00, find the minimum number of participant so that they can make a profit?

Jika yuran pendaftaran bagi seorang peserta ialah RM35.00, cari bilangan minimum peserta supaya mereka boleh mendapat keuntungan?

- A 90
- B 84
- C 83
- D 82

- 26 Which of the following number line represents the solution for $3x + 9 > -6 + 8x$ and $2x - 1 \leq 7$?

Antara yang berikut yang manakah mewakili penyelesaian bagi $3x + 9 > -6 + 8x$ dan $2x - 1 \leq 7$?



- 27 Diagram 11 is a pie chart shows a result from a survey done on two groups of students in a certain university about their preferred pet ownership. Table 2 shows an incomplete data of the number of students who prefer a certain pet.

Rajah 11 ialah carta pai yang menunjukkan kajian yang telah dijalankan ke atas dua kumpulan pelajar berkaitan dengan minat memelihara haiwan peliharaan di salah sebuah universiti tertentu. Jadual 2 menunjukkan data yang tidak lengkap mengenai bilangan pelajar yang memelihara haiwan peliharaan tertentu.

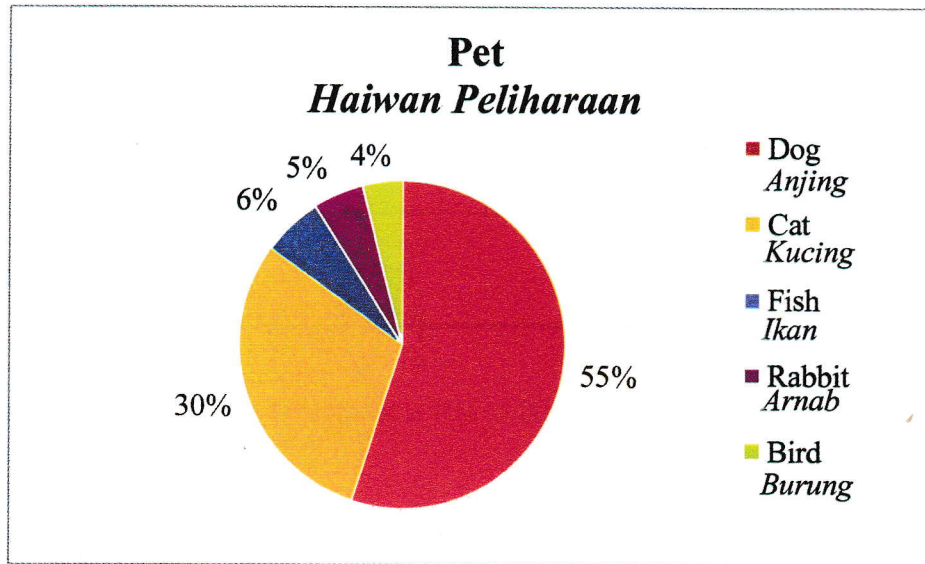


Diagram 11
Rajah 11

Student Pelajar	Pet Haiwan Peliharaan	Dog Anjing	Cat Kucing	Fish Ikan	Rabbit Arnab	Bird Burung	Total Jumlah
	Local / Tempatan		20		8		5
International / Antarabangsa		90	25		2		124

Table 2
Jadual 2

Calculate the number of local students involved in the survey.

Kira bilangan pelajar tempatan yang terlibat dalam kaji selidik tersebut.

- A 76
B 150
C 200
D 324

- 28 Diagram 12 is a histogram showing the number of cars sold by Syarikat Gemilang from March to June 2015.

Rajah 12 ialah histogram yang menunjukkan bilangan kereta yang dijual oleh Syarikat Gemilang dari bulan Mac hingga Jun 2015.

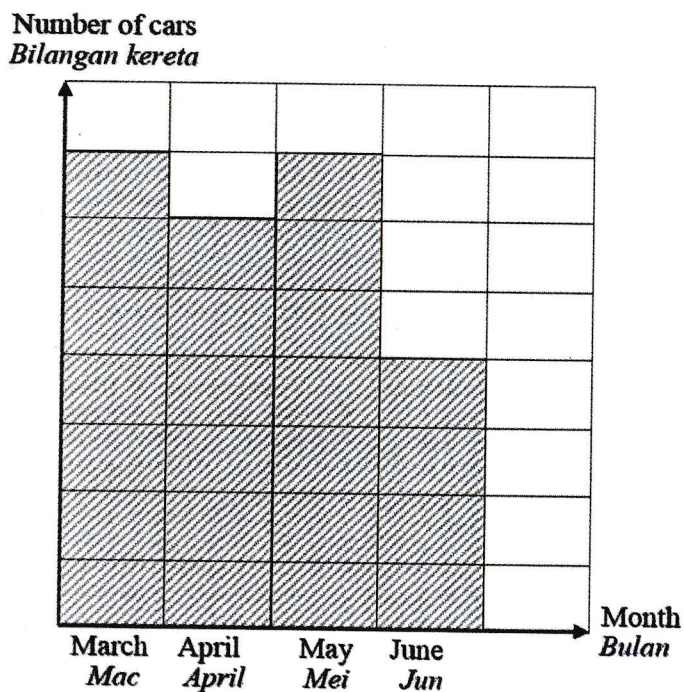


Diagram 12
Rajah 12

If the total sales of cars from March to June 2015 is 1200, find the difference between the sales of cars in April and June.

Jika jumlah jualan kereta dari Mac hingga Jun 2015 ialah 1200 buah, cari beza jualan kereta antara bulan April dan Jun.

- A 50
- B 100
- C 200
- D 300

- 29 Table 3 shows the scores obtain by a group of students in a school contest.

Jadual 3 menunjukkan skor markah yang diperolehi oleh sekumpulan pelajar dalam satu pertandingan sekolah.

Score <i>Markah</i>	10	20	30	40
Cumulative frequency <i>Kekerapan longgokan</i>	7	12	p	q

Table 3
Jadual 3

It is given that the median score is 25. Which of the following is the possible value of $p + q$?

Diberi bahawa skor median ialah 25. Antara yang berikut, manakah nilai yang mungkin bagi $p + q$?

- A $p + q = 12$
- B $p + q = 19$
- C $p + q = 24$
- D $p + q = 38$

- 30 Diagram 13 shows the graph of $y = ax^2 + bx + c$.
Rajah 13 menunjukkan graf $y = ax^2 + bx + c$.

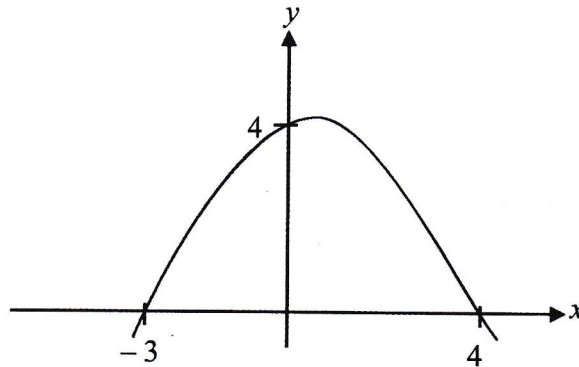


Diagram 13
Rajah 13

Find the value of a , of b and of c .

Cari nilai a , nilai b dan nilai c .

- A $a = \frac{1}{3}, b = \frac{1}{3}, c = -4$
- B $a = \frac{1}{3}, b = -\frac{1}{3}, c = -4$
- C $a = -\frac{1}{3}, b = \frac{1}{3}, c = 4$
- D $a = -\frac{1}{3}, b = -\frac{1}{3}, c = 4$

31 Given :

Universal set, $\xi = \{x : 60 \leq x \leq 90, x \text{ is an integer}\}$.

Set $Q = \{x : x \text{ is a number such that the difference between its digits is more than } 5\}$.

Find $n(Q)$.

Diberi :

Set semesta, $\xi = \{x : 60 \leq x \leq 90, x \text{ ialah integer}\}$.

Set $Q = \{x : x \text{ ialah nombor yang beza antara digit-digitnya lebih daripada } 5\}$.

Cari $n(Q)$.

A 5

B 6

C 7

D 10

- 32 Diagram 14 is a Venn diagram showing 40 students who involve in Mentoring Programme.

Given :

Universal set, $\xi = M \cup P \cup C$,

Set $M = \{\text{students who involve in Mathematics}\}$,

Set $P = \{\text{students who involve in Physics}\}$,

Set $C = \{\text{students who involve in Chemistry}\}$.

Rajah 14 ialah gambar rajah Venn yang menunjukkan 40 orang pelajar yang terlibat dalam Program Mentoring.

Diberi :

Set semesta, $\xi = M \cup P \cup C$,

Set $M = \{\text{pelajar-pelajar yang terlibat dalam Matematik}\}$,

Set $P = \{\text{pelajar-pelajar yang terlibat dalam Fizik}\}$,

Set $C = \{\text{pelajar-pelajar yang terlibat dalam Kimia}\}$.

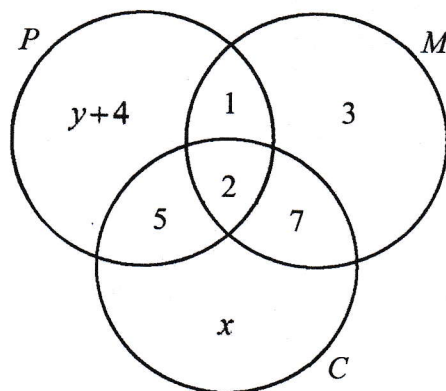


Diagram 14
Rajah 14

The number of students in Mathematics is half of those in Chemistry, find the value of x and of y .

Bilangan pelajar dalam Matematik ialah separuh daripada pelajar dalam Kimia, cari nilai x dan nilai y .

- A $x = 3, y = 15$
 B $x = 12, y = 6$
 C $x = 6, y = 12$
 D $x = 15, y = 3$

- 33 Diagram 15 shows a blueprint of a roof of a house. The owner of the house is about to replace the beam, ST , of his house from wood to metal. He needs to know the length of the beam to calculate its costs.

Rajah 15 menunjukkan pelan bumbung sebuah rumah. Pemilik rumah berkenaan bercadang menukar rasuk, ST , rumahnya daripada kayu kepada besi. Dia perlu tahu panjang rasuknya untuk mengira perbelanjaan yang terlibat.

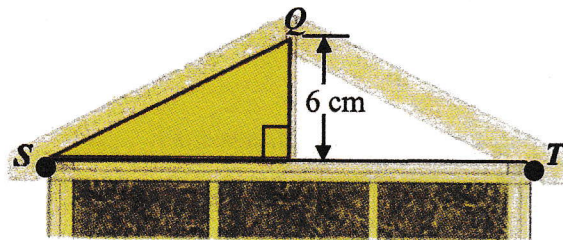


Diagram 15
Rajah 15

It is given that the equation of the rake of the roof, SQ , is $y = 6 + \frac{1}{2}x$.

Find the length, in cm, of the beam.

Diberi persamaan garis lurus alang bagi bumbung, SQ , ialah $y = 6 + \frac{1}{2}x$.

Cari panjang, dalam cm, rasuk tersebut.

- A 3
- B 6
- C 12
- D 24

- 34 Diagram 16 shows two parallel straight lines PQ and RS on a Cartesian plane. Straight line PQ passes through the origin, O and the equation of the straight line RS is $4x - 5y = 30$.

Rajah 16 menunjukkan dua garis lurus selari PQ dan RS pada suatu satah Cartes. Garis lurus PQ melalui asalan, O dan persamaan garis lurus RS ialah $4x - 5y = 30$.

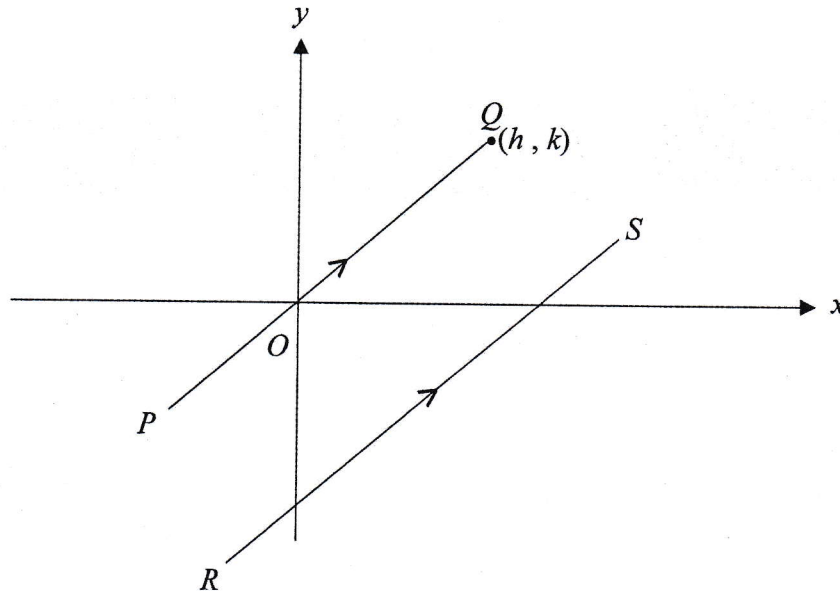


Diagram 16
Rajah 16

Find the possible value of h and of k .

Cari nilai yang mungkin bagi h dan k .

- A $h = \frac{5}{2}, k = 2$
- B $h = 4, k = 5$
- C $h = \frac{3}{2}, k = 6$
- D $h = 6, k = \frac{15}{2}$

35 Diagram 17 shows the newspaper ordered by three houses, P , Q and R on a certain day.

Rajah 17 menunjukkan langganan surat khabar oleh tiga buah rumah, P , Q dan R pada suatu hari tertentu.

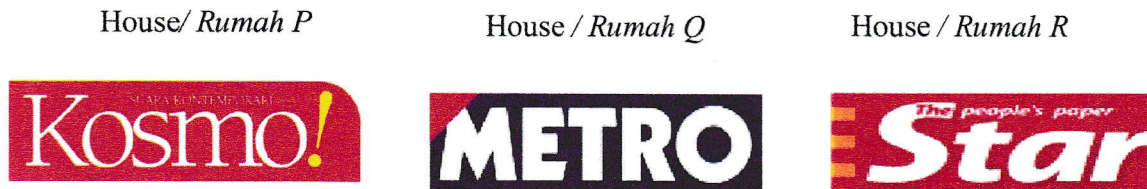


Diagram 17
Rajah 17

The delivery boy brought a copy of each newspaper Kosmo, Metro and The Star but forgot to bring the order list on that day. The probability that exactly two houses received the correct order is

Penghantar surat khabar membawa senaskhah surat khabar Kosmo, Metro dan The Star setiap satu tetapi dia terlupa untuk membawa senarai pesanan pada hari tersebut. Kebarangkalian bahawa hanya dua buah rumah sahaja menerima pesanan yang betul ialah

- A $\frac{1}{2}$
- B $\frac{1}{3}$
- C $\frac{1}{6}$
- D 0

- 36 A box contains 15 Lego bricks of which 7 bricks are blue and the rest are yellow. If two bricks are picked at random from the box, find the probability that at least one of the bricks is blue.

Sebuah kotak mengandungi 15 bongkah Lego yang terdiri daripada 7 bongkah berwarna biru dan yang selebihnya berwarna kuning. Jika dua bongkah dipilih secara rawak daripada kotak itu, cari kebarangkalian sekurang-kurangnya satu bongkah berwarna biru dipilih.

A $\frac{11}{15}$

B $\frac{8}{15}$

C $\frac{7}{15}$

D $\frac{3}{15}$

- 37 Which table represents the relation of $y \propto x^3$?

Jadual manakah yang mewakili hubungan $y \propto x^3$?

A

x	1	2	3	4
y	1	6	9	12

B

x	1	2	3	4
y	1	8	24	72

C

x	1	2	3	4
y	3	12	27	48

D

x	1	2	3	4
y	3	24	81	192

- 38 T varies directly as the square root of M and inversely as L .
The value of $T = 1.6$ when $M = 256$ and $L = 5$.
Find the value of M when $T = 5$ and $L = 2.5$.

*T berubah secara langsung dengan punca kuasa dua M
dan secara songsang dengan L .*

Nilai $T = 1.6$ apabila $M = 256$ dan $L = 5$.

Cari nilai M apabila $T = 5$ and $L = 2.5$.

- A 5
- B 25
- C 156.25
- D 625

- 39 Given that $\begin{pmatrix} 4 & 3 \\ 8 & x \end{pmatrix} \begin{pmatrix} 6 \\ 8 \end{pmatrix} = \begin{pmatrix} y \\ 24 \end{pmatrix}$, find the value of x and of y .

Diberi $\begin{pmatrix} 4 & 3 \\ 8 & x \end{pmatrix} \begin{pmatrix} 6 \\ 8 \end{pmatrix} = \begin{pmatrix} y \\ 24 \end{pmatrix}$, cari nilai x dan nilai y .

- A $x = 3, y = -4$
- B $x = -3, y = 4$
- C $x = -3, y = 48$
- D $x = -3, y = -48$

40 Which of the following matrices has no inverse?

Manakah antara matriks yang berikut tidak mempunyai matriks songsang?

A $\begin{pmatrix} -2 & 3 \\ 4 & -6 \end{pmatrix}$

B $\begin{pmatrix} 3 & 2 \\ 4 & 3 \end{pmatrix}$

C $\begin{pmatrix} 3 & 2 \\ -4 & -3 \end{pmatrix}$

D $\begin{pmatrix} 2 & 0 \\ 0 & 2 \end{pmatrix}$

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This question paper consists of **40** questions.
Kertas soalan ini mengandungi 40 soalan.
2. Answer **all** questions.
Jawab semua soalan.
3. Answer each question by blackening the correct space on the objective answer sheet.
Jawab setiap soalan dengan menghitamkan ruangan yang betul pada kertas jawapan objektif.
4. Blacken only **one** space for each question.
Hitamkan satu ruangan sahaja bagi setiap soalan.
5. If you wish to change your answer, erase the blackened mark that you have done. Then blacken the space for the new answer.
Sekiranya anda hendak menukar jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baharu.
6. The diagrams in the questions provided are not drawn to scale unless stated.
Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
7. A list of formulae is provided on pages 2 to 4.
Satu senarai rumus disediakan di halaman 2 hingga 4.
8. You may use a scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik.

JAWAPAN PAPER 1 PEPERIKSAAN AKHIR SPMRSM T5 2016

NO	JAWAPAN	NO	JAWAPAN
1	D	21	C
2	D	22	C
3	B	23	C
4	B	24	A
5	C	25	B
6	D	26	B
7	A	27	A
8	B	28	B
9	C	29	D
10	B	30	C
11	D	31	C
12	C	32	B
13	D	33	D
14	A	34	A
15	A	35	D
16	B	36	A
17	D	37	D
18	B	38	D
19	A	39	C
20	A	40	A