

MODUL PINTAS TINGKATAN LIMA

1 JAM 30 MINIT

1449/1

MATEMATIK

Kertas 1

ARAHAN :

1. Jangan Buka Kertas Peperiksaan Ini Sehingga Diberitahu.
2. Kertas peperiksaan ini adalah dalam dwibahasa.
3. Soalan dalam bahasa Melayu mendahului soalan yang sepadan dalam bahasa Inggeris.
4. Calon dikehendaki membaca maklumat di halaman belakang kertas peperiksaan ini.

NAMA :

TINGKATAN :

Kertas peperiksaan ini mengandungi 32 halaman bercetak.

[Lihat halaman sebelah

1449/1

RUMUS MATEMATIK
MATHEMATICAL FORMULAE

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

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

NOMBOR DAN OPERASI
NUMBERS AND OPERATIONS

- | | |
|--|---|
| <p>1 $a^m \times a^n = a^{m+n}$</p> <p>3 $(a^m)^n = a^{mn}$</p> <p>5 $a^{\frac{m}{n}} = (a^m)^{\frac{1}{n}} = \left(a^{\frac{1}{n}}\right)^m$</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>11 Jumlah insurans yang harus dibeli = $\left(\begin{array}{c} \text{Peratusan} \\ \text{ko-insurans} \end{array}\right) \times \left(\begin{array}{c} \text{Nilai boleh} \\ \text{insurans harta} \end{array}\right)$

$\text{Amount of required insurance} = \left(\begin{array}{c} \text{Percentage of} \\ \text{co-insurance} \end{array}\right) \times \left(\begin{array}{c} \text{Insurable value} \\ \text{of property} \end{array}\right)$</p> | <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> |
|--|---|

PERKAITAN DAN ALGEBRA
RELATIONSHIP AND ALGEBRA

- | | |
|--|--|
| <p>1 Jarak / <i>Distance</i> = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$</p> <p>3 Laju purata = $\frac{\text{Jumlah jarak}}{\text{Jumlah masa}}$

$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$</p> <p>5 $A^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$</p> | <p>2 Titik tengah / <i>Midpoint</i>,
$(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$</p> <p>4 $m = \frac{y_2 - y_1}{x_2 - x_1}$</p> <p>6 $m = -\frac{\text{pintasan-y}}{\text{pintasan-x}}$

$m = -\frac{\text{y-intercept}}{\text{x-intercept}}$</p> |
|--|--|

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 Panjang lengkok = $\frac{\theta}{360^\circ} \times 2\pi j$
Arc length = $\frac{\theta}{360^\circ} \times 2\pi r$
- 6 Luas sektor = $\frac{\theta}{360^\circ} \times \pi j^2$
Area of sector = $\frac{\theta}{360^\circ} \times \pi r^2$
- 7 Luas layang = $\frac{1}{2} \times$ hasil darab panjang dua pepenjuru
Area of kite = $\frac{1}{2} \times$ product of two diagonals
- 8 Luas trapezium = $\frac{1}{2} \times$ hasil tambah dua sisi selari \times tinggi
Area of trapezium = $\frac{1}{2} \times$ sum of two parallel sides \times height
- 9 Luas permukaan silinder = $2\pi j^2 + 2\pi jt$
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 = area of cross section \times height
- 13 Isi padu silinder = $\pi j^2 t$
Volume of cylinder = $\pi r^2 h$

14 Isi padu kon = $\frac{1}{3} \pi r^2 h$

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

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

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

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

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

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

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

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

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

STATISTIK DAN KEBARANGKALIAN
STATISTICS AND PROBABILITY

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

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

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

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

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

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

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

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

Jawab semua soalan.

Answer all questions.

- 1 Suatu nombor, n apabila dibundarkan betul kepada tiga angka bererti menjadi 4.30. Antara berikut, yang manakah nilai n yang mungkin?

A number, n is rounded off correct to three significant figures to be 4.30.

Which of the following is the possible value of n ?

- A 4.291
- B 4.295
- C 4.305
- D 4.309

- 2 Rajah 1 menunjukkan gambar Matahari yang berbentuk sfera.

Diagram 1 shows the picture of the Sun in the shape of sphere.



Rajah 1
Diagram 1

Menurut sumber Wikipedia, jejari Matahari ialah 696 342 km.

Hitung luas permukaan Matahari, dalam km^2 . Nyatakan jawapan dalam bentuk piawai betul kepada tiga angka bererti.

(Gunakan $\pi = 3.142$)

According to Wikipedia, the radius of the Sun is 696 342 km.

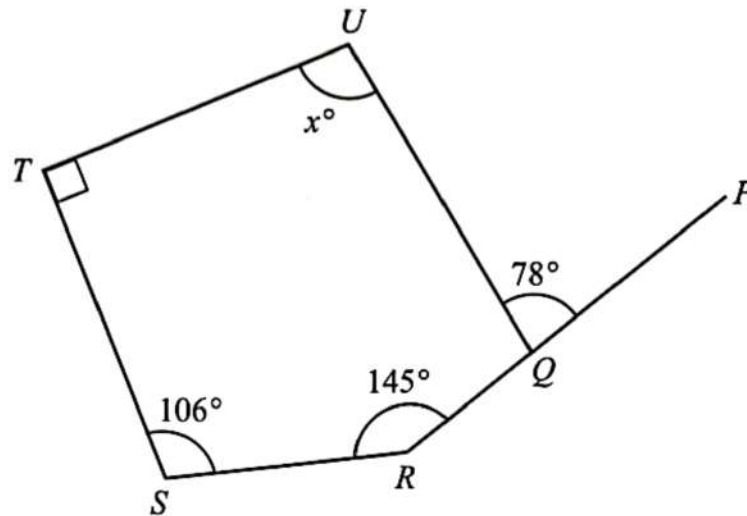
Calculate the surface area, in km^2 , of the Sun. State the answer in standard form correct to three significant figures.

(Use $\pi = 3.142$)

- A 6.09×10^{-12}
- B 6.094×10^{-12}
- C 6.094×10^{12}
- D 6.09×10^{12}

- 3 Kilang Roti Maju mengeluarkan 2.64 juta buku roti seminggu. Kilang itu beroperasi 7 hari seminggu dan 24 jam sehari.
Hitung keuntungan purata per jam jika untung bersih sebuku roti ialah 47 sen. Nyatakan jawapan dalam RM terdekat.
Kilang Roti Maju produces 2.64 million loaves of bread a week. The factory operates 7 days a week and 24 hours a day.
Calculate the average profit per hour if the net profit of one loaf of bread is 47 cents. State the answer to the nearest RM.
- A RM7 358.00
B RM7 385.00
C RM7 386.00
D RM7 538.00
- 4 Nyatakan nilai digit 7 dalam nombor 20761_9 dalam asas sepuluh.
State the value of the digit 7 in the number 20761_9 in base ten.
- A 63
B 70
C 567
D 700
- 5 Diberi bahawa $1110_3 < x_{10} < 60_7$.
Senaraikan semua integer bagi x .
Given that $1110_3 < x_{10} < 60_7$.
List down all the integers of x .
- A 39, 40
B 40, 41
C 41, 42
D 42, 43

- 6 Rajah 2 menunjukkan sebuah pentagon $QRSTU$ dan PQR ialah garis lurus.
Diagram 2 shows a pentagon $QRSTU$ and PQR is a straight line.



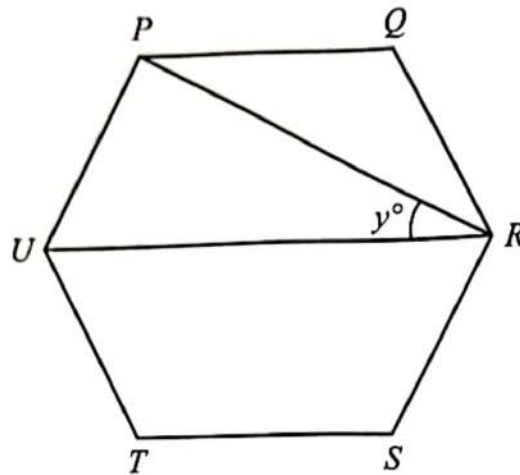
Rajah 2
Diagram 2

Cari nilai bagi x .

Find the value of x .

- A 74
- B 90
- C 97
- D 102

- 7 Rajah 3 menunjukkan heksagon sekata $PQRSTU$.
 Diagram 3 shows a regular hexagon $PQRSTU$.

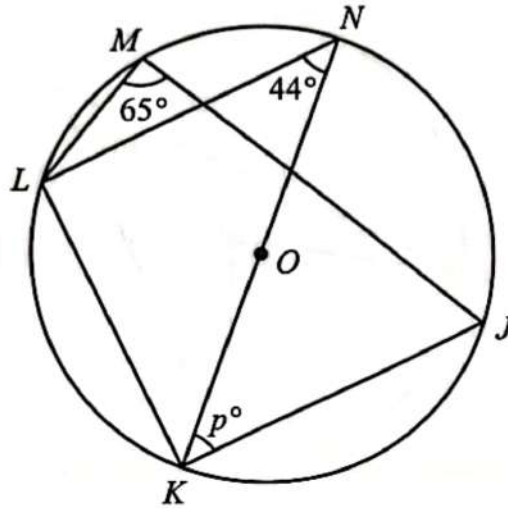


Rajah 3
 Diagram 3

Cari nilai bagi y .
 Find the value of y .

- A 60
- B 45
- C 30
- D 15

- 8 Rajah 4 menunjukkan sebuah bulatan berpusat di O . KON ialah diameter bulatan itu.
 Diagram 4 shows a circle with centre O . KON is a diameter of the circle.

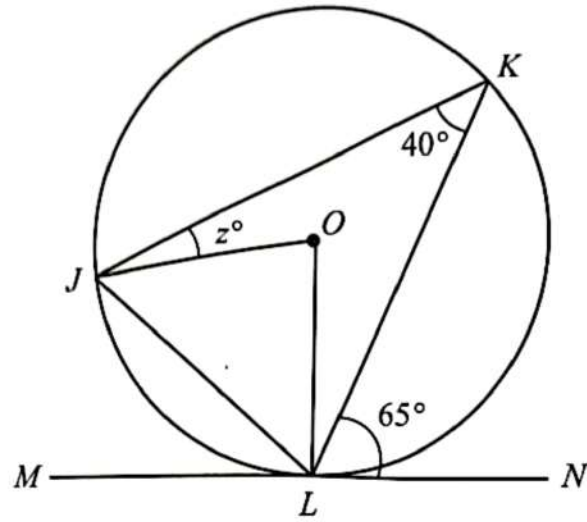


Rajah 4
 Diagram 4

Cari nilai bagi p .
 Find the value of p .

- A 25
- B 44
- C 46
- D 69

- 9 Dalam Rajah 5, MLN ialah tangen kepada bulatan JKL di titik L .
In Diagram 5, MLN is a tangent to the circle JKL at point L .

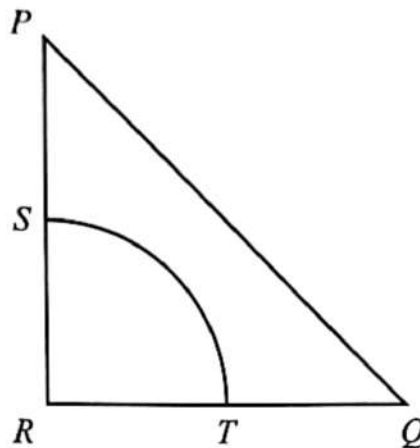


Rajah 5
 Diagram 5

Cari nilai bagi z .
 Find the value of z .

- A 15
- B 20
- C 25
- D 50

- 10 Rajah 6 menunjukkan segi tiga PQR dan sukuan bulatan RST .
 Diagram 6 shows the triangle PQR and the quadrant of the circle RST .

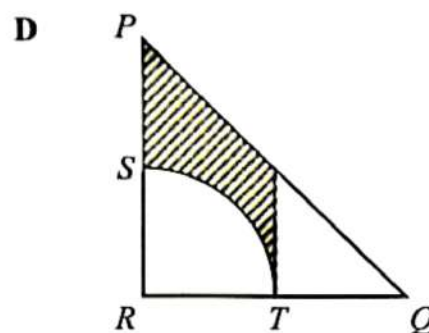
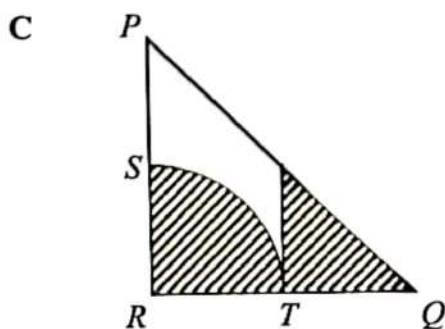
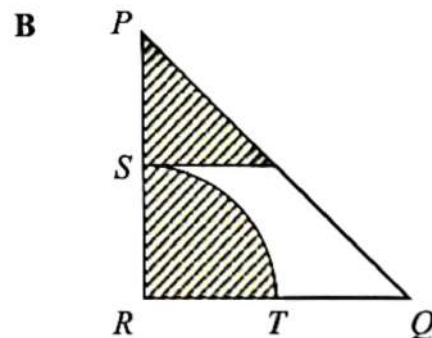
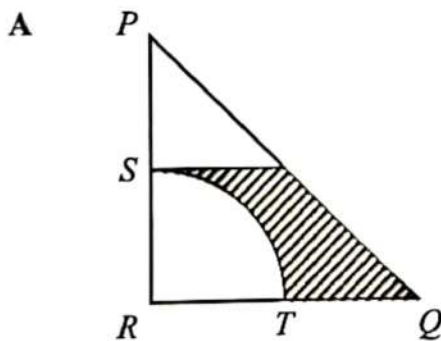


Rajah 6
 Diagram 6

Diberi bahawa $PR = QR = 4$ cm. S dan T masing-masing adalah titik tengah bagi PR dan RQ .
 Antara kawasan berlorek berikut, yang manakah mewakili lokus titik X di dalam segi tiga PQR dengan keadaan XR lebih 2 cm atau sama dari titik R dan kurang 2 cm dari sisi PR ?

Given that $PR = QR = 4$ cm. S and T are the midpoints for PR and RQ respectively.

Which of the following shaded areas represents the locus of point X in triangle PQR with XR more than 2 cm or equal from point R and less than 2 cm from side PR ?



- 11 Jadual 1 menunjukkan bilangan bola yang terdapat di dalam sebuah kotak.
Table 1 shows the number of balls in a box.

Warna <i>Colour</i>	Biru <i>Blue</i>	Kuning <i>Yellow</i>	Hijau <i>Green</i>
Bilangan <i>Number</i>	x	20	12

Jadual 1
Table 1

Hakimi mengambil sebiji bola secara rawak dari kotak tersebut. Kebarangkalian beliau mendapat bola berwarna hijau ialah $\frac{1}{4}$.

Hitung kebarangkalian Hakimi memilih bola **bukan** berwarna kuning.

Hakimi takes a ball randomly from the box. The probability of him getting a green ball is $\frac{1}{4}$.

*Calculate the probability of Hakimi choosing the ball that is **not** yellow.*

- A $\frac{1}{3}$
B $\frac{5}{12}$
C $\frac{7}{12}$
D $\frac{3}{4}$

- 12 Encik Mikhael dan Puan Hazirah mempunyai 3 orang anak iaitu Izzul, Syasya dan Amer. Izzul berusia x tahun, Syasya berusia y tahun manakala Amer berusia 2 tahun lebih tua berbanding Syasya.

Antara ungkapan berikut, yang manakah mewakili jumlah umur bagi ketiga-tiga orang anak mereka?

Encik Mikhael and Puan Hazirah have 3 children, namely Izzul, Syasya and Amer. Izzul is x years old, Syasya is y years old while Amer is 2 years older than Syasya.

Which of the following expressions represents the total ages of their three children?

- A $x + y - 2$
 B $x + y + 2$
 C $x + 2y + 2$
 D $x + 2y - 2$

- 13 Nadia telah membuat sebiji kek coklat berbentuk segi empat tepat berukuran $(6x + 4)$ cm panjang dan $(2x + 4)$ cm lebar. Dia telah memotong kek coklat tersebut kepada 6 bahagian panjang dan 4 bahagian lebar.

Hitung luas permukaan atas sepotong kek coklat tersebut.

Nadia has bake a rectangular chocolate cake measuring $(6x + 4)$ cm long and $(2x + 4)$ cm wide. She has cut the chocolate cake to 6 parts long and 4 parts wide.

Calculate the top surface area of a piece of the chocolate cake.

- A $\frac{3x^2 + 8x + 4}{6}$
 B $\frac{2(3x^2 + 8x + 4)}{5}$
 C $\frac{4(x^2 + 1)}{5}$
 D $\frac{3x^2 + 4}{6}$

- 14 Seorang pengurus cawangan sebuah kedai pakaian dibayar gaji 3 kali ganda berbanding gaji pekerja sambilan, RM x per jam. Masa bekerja untuk pekerja sambilan tersebut ialah separuh daripada masa bekerja pengurus itu, y jam dalam tempoh sehari.
- Jika mereka bekerja selama 26 hari dalam sebulan, ungkapkan perbezaan gaji, RM z antara kedua-dua pekerja tersebut dalam sebutan x dan y .
- A branch manager of a clothing store is paid a salary 3 times that of a part-time worker, RM x per hour. The working time for the part-time worker is half of the manager's working time, y hours in the day.*
- If they work for 26 days a month, express the difference in salary, RM z between the two workers in terms of x and y .*
- A $z = 91xy$
- B $z = 65xy$
- C $z = 52xy$
- D $z = 26xy$
- 15 Diberi bahawa luas bagi bentuk P dan bentuk Q ialah 16 cm^2 dan 36 cm^2 .
- Jika bentuk Q ialah imej bagi bentuk P di bawah suatu pembesaran, tentukan faktor skala bagi pembesaran itu sekiranya kedudukan imej berada bertentangan dengan objek.
- Given that the area for the shape P and shape Q is 16 cm^2 and 36 cm^2 .*
- If the shape Q is the image for the shape P under an enlargement, determine the scale factor for the enlargement if the position of the image is on the opposite site of object.*
- A $\frac{9}{4}$
- B $\frac{3}{2}$
- C $-\frac{3}{2}$
- D $-\frac{9}{4}$

- 16 Gopal menjalankan satu tinjauan mengenai hobi murid-murid tingkatan lima. Jadual 2 menunjukkan hasil tinjauan Gopal. Diberi bilangan murid yang suka menyanyi adalah separuh daripada bilangan murid yang suka menari. Bilangan murid yang suka menari adalah $\frac{1}{3}$ daripada jumlah murid tingkatan lima.

Gopal conducted a survey on the hobbies of form five students. Table 2 shows the results of Gopal's survey.

Given the number of students who like to sing is half of the number of students who like to dance. The number of students who like to dance is $\frac{1}{3}$ of the total form five students.

Hobi <i>Hobby</i>	Bilangan murid <i>Number of students</i>
Menari <i>Dancing</i>	y
Membaca <i>Reading</i>	15
Berenang <i>Swimming</i>	45
Menyanyi <i>Singing</i>	x

Jadual 2
Table 2

Jika satu carta pai dilukis untuk mewakili maklumat yang diberi, hitung beza sudut sektor yang mewakili bilangan murid yang suka menari dan membaca.

If a pie chart is drawn to represent the given information, calculate the difference of the angle of the sectors which represent the number of students who like to dance and read.

- A 45°
- B 75°
- C 120°
- D 165°

- 17 Jadual 3 menunjukkan taburan skor sekumpulan murid dalam satu kuiz.

Table 3 shows the distribution of the scores of a group of students in a quiz.

Skor Score	4	5	6	7
Kekerapan longgokan Cumulative frequency	$3x$	$4x + 4$	$4x + 10$	$4x + 16$

Jadual 3
Table 3

Diberi bahawa min bagi data tersebut ialah 5, tentukan skor mod.

Given that the mean for the data is 5, determine the score mode.

- A 3
- B 4
- C 5
- D 6

- 18 Jarak di antara bandar Ipoh dengan bandar Petaling Jaya di atas peta ialah 4.8 cm. Diberi skala yang digunakan pada peta ialah 1 cm : 50 km.

Jika Benjamin mula memandu keretanya dari bandar Ipoh pada jam 1050 dan tiba di bandar Petaling Jaya pada jam 1320, hitung laju purata kereta tersebut dalam km j^{-1} .

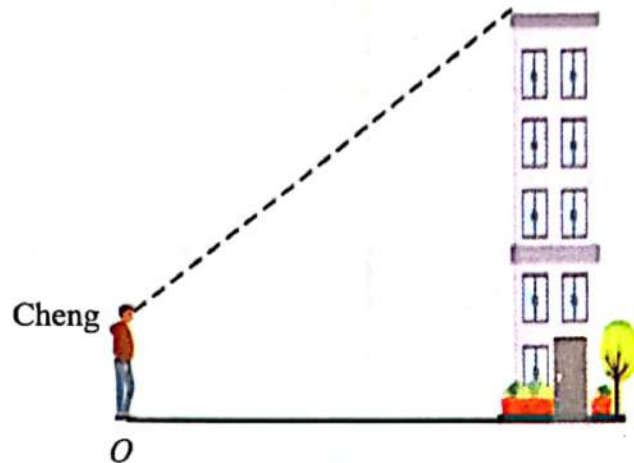
The distance between Ipoh town and Petaling Jaya town on map is 4.8 cm. Given the scale used on the map is 1 cm : 50 km.

If Benjamin starts driving his car from Ipoh town at 1050 hours and reaches Petaling Jaya town at 1320 hours, calculate the average speed of the car in km h^{-1} .

- A 80
- B 92
- C 96
- D 98

- 19 Rajah 7 menunjukkan Cheng sedang memerhati puncak sebuah bangunan. Apabila dia berdiri di titik O , dia mendapati sudut dongakan puncak bangunan dari aras matanya ialah 35° . Kemudian, dia berjalan sejauh 3.5 m menuju ke arah bangunan itu dan mendapati bahawa sudut dongakan puncak bangunan menjadi 43° .

Diagram 7 shows Cheng is observing the top of the building. When he is standing at point O , he finds that the angle of elevation of the top of the building from his eye level is 35° . He then walks 3.5 m towards the building and finds that the angle of elevation of the top of the building becomes 43° .



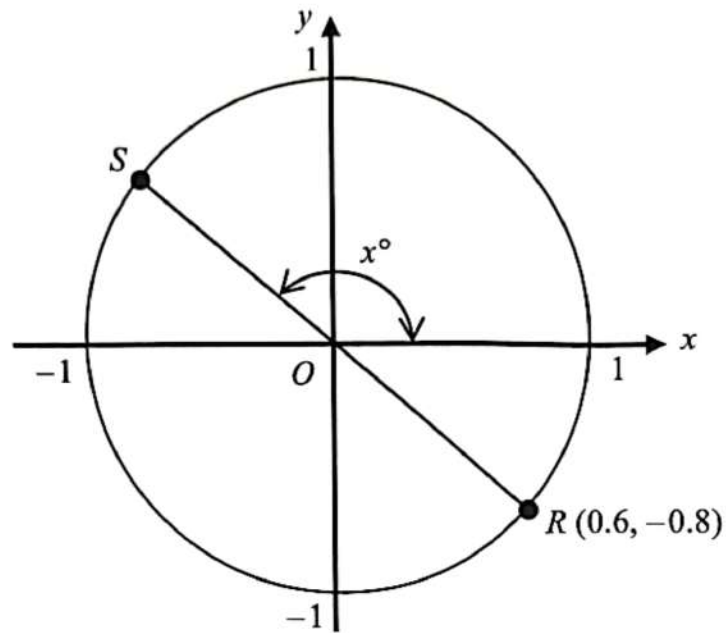
Rajah 7
Diagram 7

Jika tinggi aras mata Cheng dari tanah mengufuk ialah 1.75 m, hitung tinggi, dalam m, bangunan itu.

If the height of Cheng's eye level from the horizontal ground is 1.75 m, calculate the height, in m, of the building.

- A 4.8
- B 6.5
- C 9.8
- D 11.6

- 20 Dalam Rajah 8, ROS ialah diameter satu bulatan unit.
In Diagram 8, ROS is a diameter of a unit circle.



Rajah 8
 Diagram 8

Cari nilai x .
 Find the value of x .

- A 126.87
- B 141.34
- C 143.13
- D 149.04

- 21 Diberi $\{(J, J), (J, K), (J, N), (K, L), (K, M), (L, M), (M, N), (M, N)\}$ adalah tepi bagi suatu graf mudah.

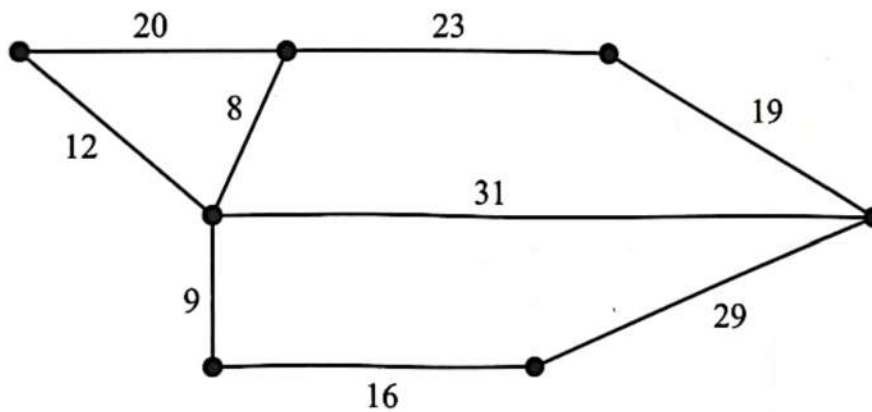
Tentukan bucu bagi graf mudah tersebut.

Given $\{(J, J), (J, K), (J, N), (K, L), (K, M), (L, M), (M, N), (M, N)\}$ is edges of a simple graph. Determine the vertices of the simple graph.

- A $\{J, J, K, L, M, M, N, N\}$
 B $\{J, K, L, M, N, N\}$
 C $\{J, J, K, L, M, N\}$
 D $\{J, K, L, M, N\}$

- 22 Rajah 9 menunjukkan suatu graf tak terarah dengan pemberat.

Diagram 9 shows the undirected graph with weighted.



Rajah 9
Diagram 9

Rizal ingin melukis satu pokok dengan nilai pemberat yang minimum bagi graf tak terarah tersebut.

Tentukan nilai pemberat minimum tersebut.

Rizal wants to draw a tree with minimum weight value for the undirected graph.

Determine the value of minimum weighted.

- A 87
 B 93
 C 95
 D 115

- 23 Luas dan tinggi bagi sebuah trapezium adalah masing-masing 144 cm^2 dan 18 cm . Dua sisi selari bagi trapezium tersebut ialah x dan y .

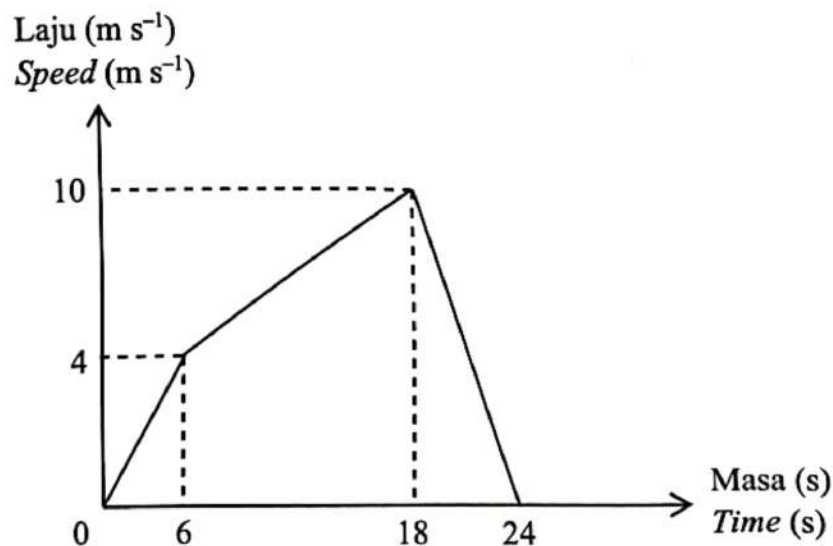
Diberi bahawa $x : y = 1 : 3$, hitung nilai x .

The area and height of a trapezium is 144 cm^2 and 18 cm respectively. Two parallel sides of the trapezium are x and y .

Given that $x : y = 1 : 3$, calculate the value of x .

- A 1
- B 3
- C 4
- D 12

- 24 Rajah 10 menunjukkan graf laju-masa bagi pergerakan suatu zarah.
Diagram 10 shows a speed-time graph for the motion of a particle.



Rajah 10
Diagram 10

Hitung pecutan bagi 6 saat yang kedua.

Calculate the acceleration for the second 6 seconds.

- A 0.5 m s^{-2}
- B 0.67 m s^{-2}
- C 1.67 m s^{-2}
- D 1.8 m s^{-2}

- 25 Selesaikan ketaksamaan linear serentak bagi $5 - 3w \geq -4$ dan $-4w - 2 < 6$.
Solve the simultaneous linear inequalities for $5 - 3w \geq -4$ and $-4w - 2 < 6$.

- A $w = -1, 0, 1, 2, 3$
 B $w = -2, -1, 0, 1, 2$
 C $w = -2, -1, 0, 1, 2, 3$
 D $w = -1, 0, 1, 2, 3, 4$

- 26 Permudahkan:
Simplify:

$$\frac{5^{4n+2} \times 5^{2n}}{5^{3n-1}}$$

- A 5^{3n-1}
 B 5^{3n+3}
 C 5^{5n-1}
 D 5^{9n-1}
- 27 Diberi $4(8^{3x}) = 1$.
Hitung nilai x .
Given $4(8^{3x}) = 1$.
Calculate the value of x .

- A $\frac{1}{3}$
 B $\frac{2}{9}$
 C $-\frac{1}{3}$
 D $-\frac{2}{9}$

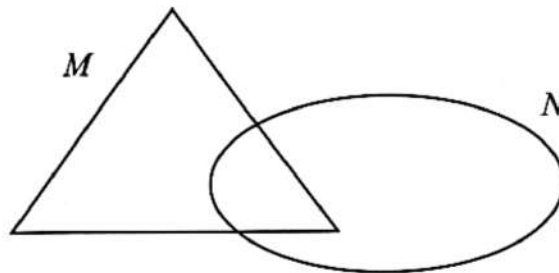
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- 28 Mina membeli sekeping kek yang berbentuk rombus dengan pepenjuru masing-masing ialah 10 cm dan 24 cm.
Cari perimeter permukaan atas kek tersebut.

*Mina buys a slice of cake shaped of a rhombus with diagonals 10 cm and 24 cm respectively.
Find the perimeter of the upper surface of the cake.*

- A 40
B 52
C 60
D 104

- 29 Rajah 11 ialah gambar rajah Venn dengan set semesta $\xi = M \cup N$.
Diagram 11 is a Venn diagram with the universal set $\xi = M \cup N$.



Rajah 11
Diagram 11

Diberi $n(\xi) = 58$, $n(M) = 40$, $n(M \cap N) = 12$ dan $n(M^c) = x + 8$.
Cari nilai x .

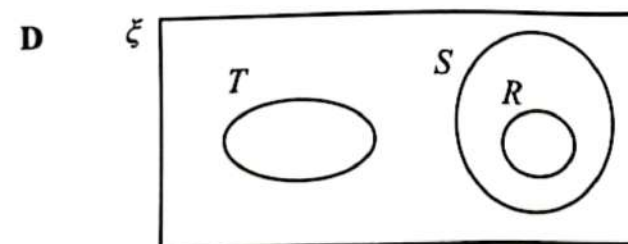
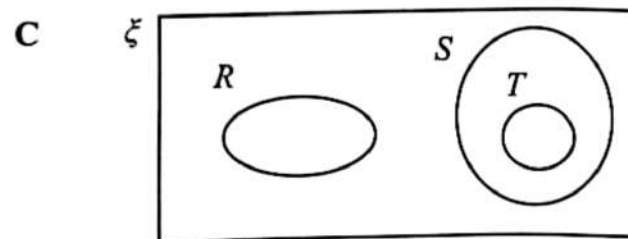
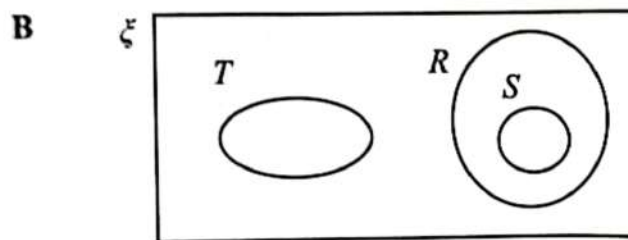
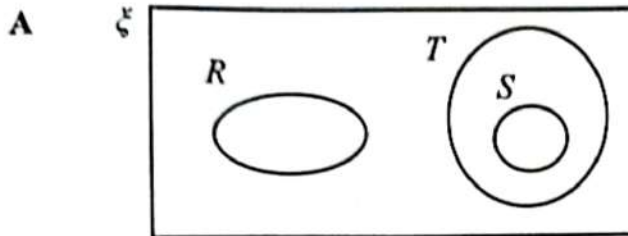
*Given $n(\xi) = 58$, $n(M) = 40$, $n(M \cap N) = 12$ and $n(M^c) = x + 8$.
Find the value of x .*

- A 6
B 8
C 10
D 12

- 30 Diberi set semesta ξ , set R , set S dan set T .
Antara yang berikut, gambar rajah Venn yang manakah mewakili hubungan $R \subset S$ dan $S \cap T = \{ \}$?

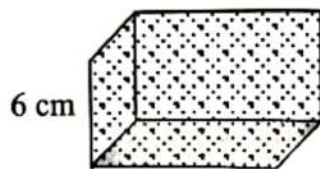
Given universal set ξ , set R , set S and set T .

Which of the following Venn diagram represents the relationships of $R \subset S$ and $S \cap T = \{ \}$?

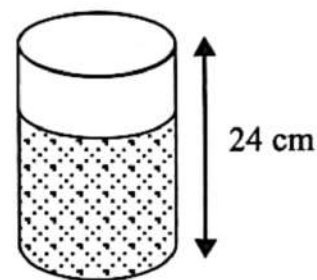


- 31 Rajah 12(a) menunjukkan sebuah bekas berbentuk kuboid dengan luas tapak 176 cm^2 dan tinggi 6 cm. Rajah 12(b) pula menunjukkan sebuah bekas silinder yang mempunyai ketinggian 24 cm dan jejari 4 cm. Bella menuang air ke dalam bekas kuboid sehingga penuh. Selepas itu, Bella ingin memasukkan air dalam bekas kuboid ke dalam bekas silinder. Selepas selesai menuang air tersebut, Bella perasan, dia perlukan lebih lagi air untuk memenuhi bekas silinder itu.

Diagram 12(a) shows a cuboidal container with base area of 176 cm^2 and height of 6 cm. Diagram 12(b) shows a cylindrical container that has height of 24 cm and radius of 4 cm. Bella poured water into a cuboidal container until it is full. After a while, Bella wants to transfer the water in the cuboidal container into a cylindrical container. After transferring the water, Bella noticed that she needed more water to fill the cylindrical container until full.



Rajah 12(a)
Diagram 12(a)



Rajah 12(b)
Diagram 12(b)

Berapakah isi padu air, dalam unit liter, yang perlu ditambah oleh Bella bagi memenuhi bekas silinder itu?

(Gunakan $\pi = \frac{22}{7}$)

How much the volume of water, in litre, is Bella needed to fill up the cylindrical container?

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

- A 0.12
- B 0.15
- C 1.2
- D 1.5

- 32 Danial ingin membeli sepasang kasut berjenama dalam talian berdasarkan harga promosi yang ditawarkan oleh syarikat tempatan dan syarikat luar negara. Maklumat promosi jualan bagi kedua-dua syarikat diberi dalam Jadual 4 yang ditunjukkan di bawah.

Danial wants to buy a pair of branded shoes online based on the promotional price offered from local company and abroad. Sale's promotion detail of two companies given in Table 4 as shown below.

	Syarikat tempatan <i>Local company</i>	Syarikat luar negara <i>Abroad company</i>
Harga promosi <i>Promotional price</i>	RM1 200.00	USD260.00
Caj kiriman <i>Shipping charges</i>	2% daripada harga promosi <i>2% of promotional price</i>	USD50.00
Caj tambahan <i>Additional charges</i>	—	1%
RM1.00 = USD0.24		

Jadual 4
Table 4

Jika Danial membayar menggunakan kad kredit, pihak bank akan mengenakan 1% caj tambahan bagi setiap transaksi dari luar negara.

Pilih jawapan yang **benar** bagi harga kasut yang perlu dibayar oleh Danial kepada syarikat-syarikat tersebut.

If Danial make a payment by credit card, the bank will charge 1% of additional fee on each transaction from abroad.

*Choose the **correct** answer of shoes prices that Danial need to pay to the companies.*

	Syarikat tempatan <i>Local company</i>	Syarikat luar negara <i>Abroad company</i>
A	RM1 200.00	RM1 083.33
B	RM1 202.00	RM1 291.33
C	RM1 202.00	RM1 302.49
D	RM1 224.00	RM1 302.49

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- 33 Diberi bahawa p berubah secara langsung dengan kuasa dua x dan secara songsang dengan punca kuasa dua h .

Jika $p = 8$ apabila $x = 4$ dan $h = 36$, ungkapkan p dalam sebutan x dan h .

Given that p varies directly as square of x and inversely as square root of h .

If $p = 8$ when $x = 4$ and $h = 36$, express p in terms of x and h .

A $p = \frac{x^2}{\sqrt{h}}$

B $p = \frac{3x^2}{\sqrt{h}}$

C $p = \frac{4x^2}{5\sqrt{h}}$

D $p = \frac{18x^2}{\sqrt{h}}$

- 34 Jadual 5 menunjukkan perubahan tiga kuantiti. Diberi P berubah secara langsung dengan R dan kuasa tiga Q .

Table 5 shows the changes in three quantities. Given P varies directly as R and the cube of Q .

P	103.68	x	1.015
Q	1.2	2	y
R	12	0.5	7

Jadual 5

Table 5

Hitung nilai x dan nilai y .

Calculate the value of x and of y .

- A $x = 20, y = 0.029$
 B $x = 20, y = 0.307$
 C $x = 28.8, y = 0.020$
 D $x = 28.8, y = 0.272$

- 35 Hakimi menerima pendapatan bulanan sebanyak RM6 500.00. Dia juga menyewakan rumahnya sebanyak RM600.00 sebulan. Dia mempunyai perbelanjaan tetap sebanyak RM1 600.00 dan perbelanjaan tidak tetap sebanyak RM1 500.00 sebulan.
Hitung aliran tunai bulanan Hakimi.

Hakimi earns a monthly income of RM6 500.00. He also rents out his house for RM600.00 a month. He has fixed expenses of RM1 600.00 and variable expenses of RM1 500.00 in a month.

Calculate Hakimi's monthly cash flow.

- A RM4 000.00
- B RM3 300.00
- C RM3 100.00
- D RM1 800.00

- 36 Diberi matriks $A = \begin{pmatrix} 8 & -1 \\ -4 & 1 \end{pmatrix}$, $B = k \begin{pmatrix} 1 & 1 \\ h & 8 \end{pmatrix}$, dengan keadaan $AB = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$.
Cari nilai h dan k .

*Given matrix $A = \begin{pmatrix} 8 & -1 \\ -4 & 1 \end{pmatrix}$, $B = k \begin{pmatrix} 1 & 1 \\ h & 8 \end{pmatrix}$, with circumstances $AB = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$.
Find the values of h and k .*

- A $h = 4, k = \frac{1}{12}$
- B $h = -4, k = \frac{1}{12}$
- C $h = 4, k = \frac{1}{4}$
- D $h = -4, k = \frac{1}{4}$

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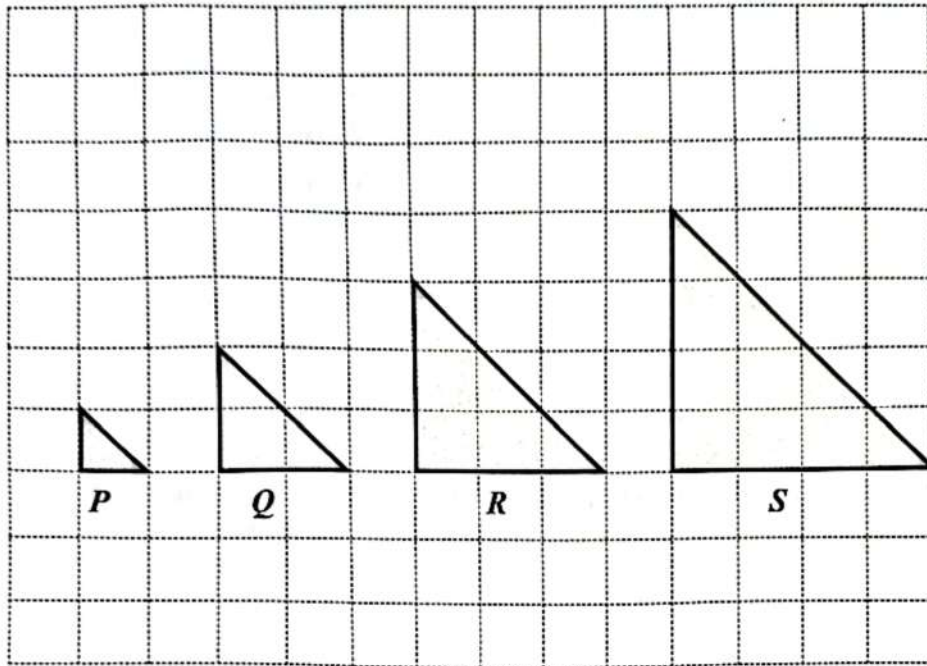
- 37 Tentukan nilai x bagi persamaan matriks berikut:
Determine the value of x for the following matrix equation:

$$\begin{pmatrix} 4 \\ -5 \end{pmatrix} + 2 \begin{pmatrix} x \\ 3 \end{pmatrix} = \begin{pmatrix} 8 \\ 1 \end{pmatrix}$$

- A 2
- B 4
- C 6
- D 8

- 38 Rajah 13 menunjukkan empat objek P , Q , R dan S dilukis pada grid segi empat sama. P , R dan S ialah imej bagi Q di bawah suatu pembesaran.

Diagram 13 shows four objects, P , Q , R and S drawn on the square grid. P , R and S are images of Q under an enlargement.



Rajah 13
Diagram 13

Antara berikut, yang manakah benar?

Which of the following is true?

	Imej Image	Faktor skala Scale factor
A	P	$\frac{1}{2}$
B	R	2
C	Q	$\frac{2}{3}$
D	S	$\frac{1}{2}$

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- 39 Motosikal Rishi dilindungi dengan insurans motor yang mempunyai peruntukan deduktibel sebanyak RM280.00. Sepanjang tempoh insurans tersebut, Rishi telah terlibat dengan dua kemalangan. Jadual 6 menunjukkan kerugian yang dialaminya.

Rishi's motorcycles are covered by motor insurance which has a deductible provision of RM280.00. During the insurance period, Rishi was involved in two accidents. Table 6 shows the losses he suffered.

Kemalangan <i>Accidents</i>	Kerugian <i>Loss</i>
Pertama <i>First</i>	RM150.50
Kedua <i>Second</i>	RM390.00

Jadual 6
Table 6

Nyatakan jumlah bayaran pampasan yang boleh dituntut oleh Rishi.
State the amount of compensation that can be claimed by Rishi.

- A RM540.50
- B RM260.50
- C RM129.50
- D RM110.00

- 40 Puan Elina memperoleh pendapatan tahunan pada tahun 2021 sebanyak RM112 500.00 termasuk elaun sebanyak RM10 500.00 yang dikecualikan cukai. Jumlah pelepasan cukai beliau adalah RM26 400.00. Pada tahun itu, dia telah membayar zakat fitrah dan telah memberi derma masing-masing sebanyak RM50.50 dan RM4 000.00.

Hitung pendapatan bercukai Puan Elina.

Puan Elina's earned an annual income of RM112 500.00 in year 2021 including a tax-exempt allowance of RM10 500.00. Her total tax relief is RM26 400.00. In that year, she paid 'zakat fitrah' and gave donations of RM50.50 and RM4 000.00 respectively.

Calculate Puan Elina's chargeable income.

- A RM71 549.50
- B RM71 600.00
- C RM75 545.50
- D RM75 600.00

KERTAS PEPERIKSAAN TAMAT
END OF QUESTION PAPER

**MAKLUMAT UNTUK CALON
INFORMATION FOR CANDIDATES**

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