

SULIT



JABATAN PELAJARAN NEGERI TERENGGANU

**PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA 2008**

1449/1

MATHEMATICS

Kertas 1

Ogos/September

2008

$1\frac{1}{4}$ jam

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 29 halaman bercetak

**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 = $\pi d = 2\pi r$
- 3 Area of circle = πr^2
Luas bulatan = πr^2
- 4 Curved surface area of cylinder = $2\pi rh$
Luas permukaan melengkung silinder = $2\pi r h$
- 5 Surface area of sphere = $4\pi r^2$
Luas permukaan sfera = $4\pi r^2$
- 6 Volume of right prism = cross sectional area \times length
Isipadu prisma tegak = luas keratan rentas \times panjang
- 7 Volume of cylinder = $\pi r^2 h$
Isipadu silinder = $\pi r^2 h$
- 8 Volume of cone = $\frac{1}{3} \pi r^2 h$
Isipadu kon = $\frac{1}{3} \pi r^2 h$
- 9 Volume of sphere = $\frac{4}{3} \pi r^3$
Isipadu sfera = $\frac{4}{3} \pi r^3$
- 10 Volume of right pyramid = $\frac{1}{3} \times \text{base area} \times \text{height}$
Isipadu 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
 $= (n - 2) \times 180^\circ$

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>2 $a^m \div a^n = a^{m-n}$</p> <p>3 $(a^m)^n = a^{mn}$</p> <p>4 $A^{-1} = \frac{1}{ad-bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$</p> <p>5 Distance / Jarak
 $= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$</p> <p>6 Midpoint / Titik tengah
 $(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$</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 = $\frac{\text{sum of data}}{\text{number of data}}$
 <i>Min = $\frac{\text{hasil tambah nilai data}}{\text{bilangan data}}$</i></p> <p>9 Mean = $\frac{\text{sum of (classmark} \times \text{frequency)}}{\text{sum of frequencies}}$
 <i>Min = $\frac{\text{hasil tambah (nilai titik tengah kelas} \times \text{kekerapan)}}{\text{hasil tambah kekerapan}}$</i></p> | <p>10 Pythagoras Theorem
 <i>Teorem Pithagoras</i>
 $c^2 = a^2 + b^2$</p> <p>11 $P(A) = \frac{n(A)}{n(S)}$</p> <p>12 $P(A') = 1 - P(A)$</p> <p>13 $m = \frac{y_2 - y_1}{x_2 - x_1}$</p> <p>14 $m = -\frac{y\text{-intercept}}{x\text{-intercept}}$
 $m = -\frac{\text{pintasan } y}{\text{pintasan } x}$</p> |
|---|--|

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

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

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

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

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

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

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

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

- 1 Round off 0.007205 correct to three significant figures.
Bundarkan 0.007205 betul kepada tiga angka bererti.

A 0.007
B 0.008
C 0.00720
D 0.00721

- 2 Express 9.073×10^{-3} as a single number.
Ungkapkan 9.073×10^{-3} sebagai satu nombor tunggal.

A 9 073 000
B 9 073
C 0.009 073
D 0.000 907 3

- 3 $6.5 \times 10^5 - 37000 =$

A 6.13×10^5
B 6.13×10^4
C 2.8×10^5
D 2.8×10^4

- 4 $1011_2 + 101101_2 =$

A 110000_2
B 111000_2
C 1011101_2
D 1111001_2

- 5 Given $1100_2 + k_2 = 11001_2$, find the value of k .

Diberi $1100_2 + k_2 = 11001_2$, cari nilai k .

- A 101
- B 1001
- C 1101
- D 10001

- 6 In Diagram 1, $PQRSTU$ is a regular hexagon. LTS is a straight line.

Dalam Rajah 1, $PQRSTU$ ialah sebuah heksagon sekata. LTS ialah garis lurus.

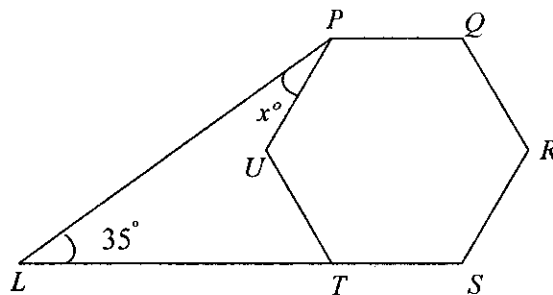


Diagram 1/Rajah 1

Find the value of x

Carikan nilai x .

- A 15
- B 25
- C 35
- D 60

- 7 In Diagram 2, $JKLMN$ is a regular pentagon MNS and KJS are straight lines.
 Dalam Rajah 2, $JKLMN$ ialah sebuah pentagon sekata. MNS dan KJS ialah garis lurus.

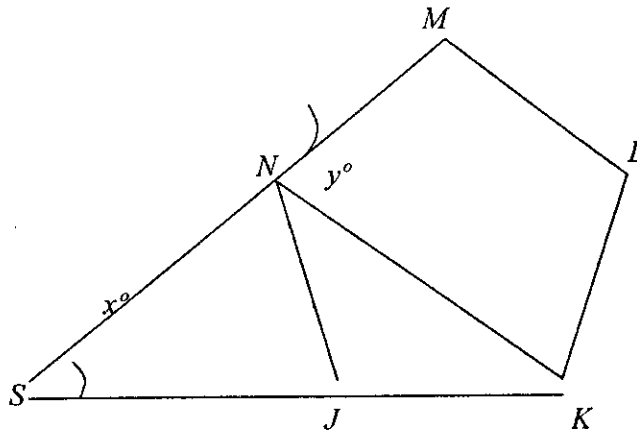


Diagram 2/Rajah 2

Value $x + y =$

Nilai $x + y =$

- A 104
- B 108
- C 144
- D 180

- 8 In Diagram 3, STU is a tangent to the circle $PQRT$ at T and TQ is a diameter of circle.

Dalam Rajah 3, STU ialah tangen kepada bulatan $PQRT$ di T dan TQ ialah diameter bulatan.

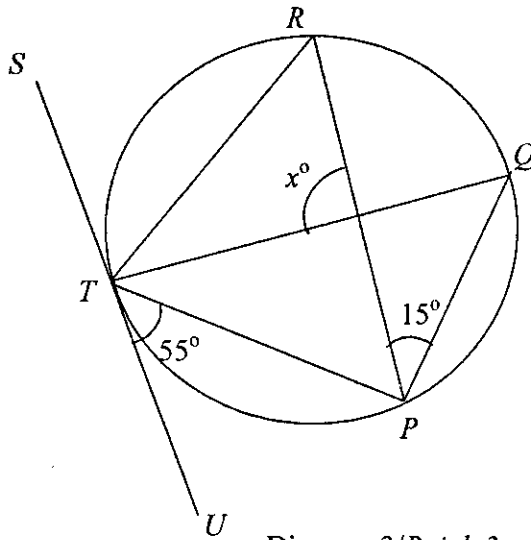


Diagram 3/Rajah 3

Value of x is

Nilai x ialah

- A 130
- B 125
- C 110
- D 70

- 9 In Diagram 4, triangle Q is the image of triangle P under a transformation M and triangle P is the image of triangle R under a transformation N

Dalam Rajah 4 segitiga Q ialah imej bagi segitiga P di bawah suatu penjelmaan M dan segitiga P ialah imej bagi segitiga R di bawah suatu penjelmaan N .

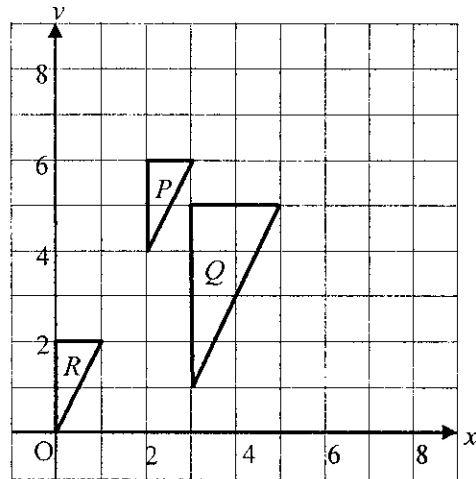


Diagram 4/Rajah 4

Transformation M and Transformation N are

Penjelmaan M dan penjelmaan N adalah

	Transformation M / <i>Penjelmaan M</i>	Transformation N / <i>Penjelmaan N</i>
A	Translation / <i>Translasi</i>	Enlargement / <i>Pembesaran</i>
B	Enlargement / <i>Pembesaran</i>	Reflection / <i>Pantulan</i>
C	Rotation / <i>Putaran</i>	Translation / <i>Translasi</i>
D	Enlargement / <i>Pembesaran</i>	Translation / <i>Translasi</i>

- 10 Diagram 5 shows five right angle triangles drawn on square grids.

Rajah 5 menunjukkan lima segitiga bersudut tegak dilukis pada grid segiempat sama.

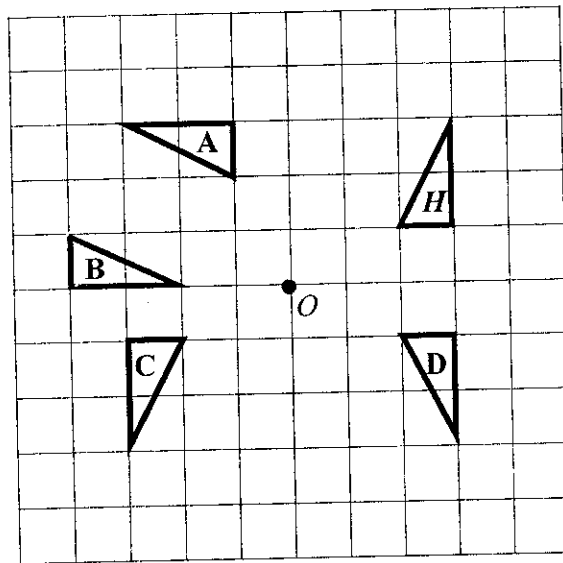


Diagram 5/Rajah 5

Which of the triangle **A**, **B**, **C** and **D**, is the image of right angle triangle **H** under the rotation 180° about the centre O ?

*Antara segitiga bersudut tegak **A**, **B**, **C** dan **D**, yang manakah imej bagi segitiga bersudut tegak **H** di bawah putaran 180° pada pusat O ?*

- 11 In Diagram 6, $BCEF$ and ACD are straight lines.
 Dalam Rajah 6, $BCEF$ dan ACD ialah garis lurus.

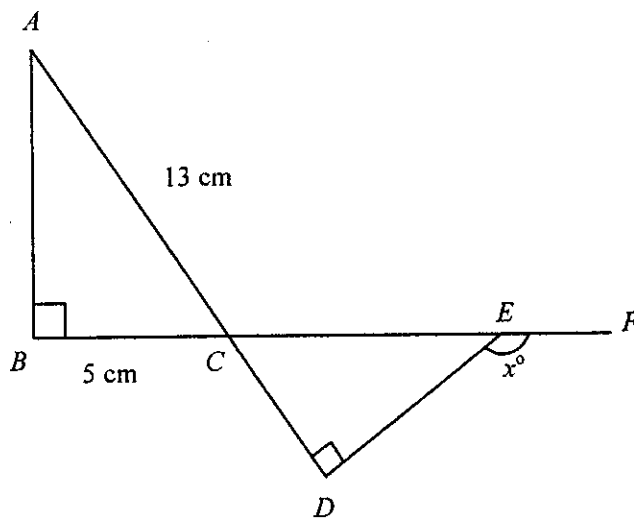


Diagram 6 / Rajah 6

Find the value of $\cos x^\circ$

Cari nilai kos x°

- A $\frac{5}{13}$
 B $\frac{12}{13}$
 C $-\frac{5}{13}$
 D $-\frac{12}{13}$

- 12 Given $\sin x = -0.6691$ and $0^\circ \leq x \leq 360^\circ$. Find the values of x .

Diberi $\sin x = -0.6691$ dan $0^\circ \leq x \leq 360^\circ$. Carikan nilai-nilai bagi x .

- A 132° and/dan 222°
- B 138° and/dan 222°
- C 222° and/dan 318°
- D 232° and/dan 318°

- 13 Diagram 7 shows a unit circle with the centre O .

Rajah 7 menunjukkan sebuah bulatan unit berpusat O .

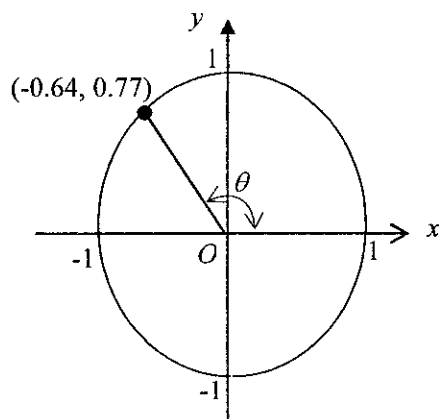


Diagram7/Rajah 7

The value of $\tan \theta$ is

Nilai bagi $\tan \theta$ ialah

- A 0.83
- B 0.77
- C -1.20
- D -0.64

- 14 Diagram 8 shows a right prism with an isosceles triangle PQR as its horizontal base. M and N are the mid points of SU and RQ respectively

Rajah 8 menunjukkan sebuah prisma tegak dengan tapak mengufuk PQR yang berbentuk segi tiga sama kaki. M dan N masing-masing ialah titik tengah bagi SU dan RQ .

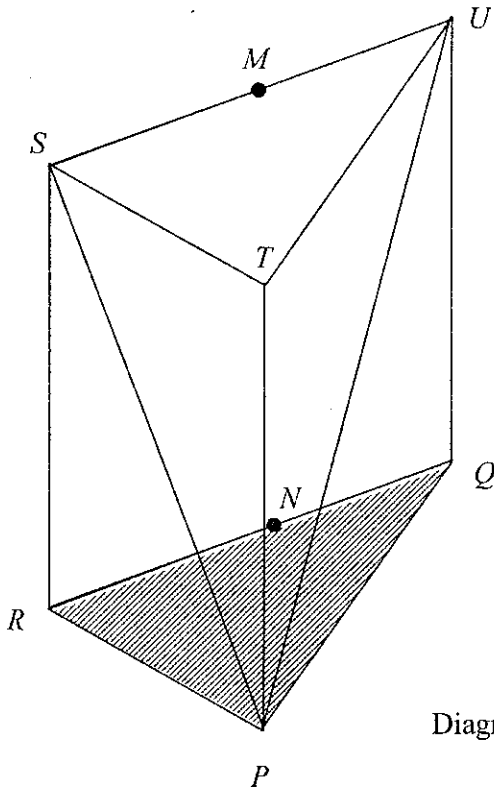


Diagram 8/Rajah 8

Name the angle between the plane PQR and the plane PUS .

Namakan sudut antara satah PQR dan satah PUS .

- A. $\angle UPT$
- B. $\angle QPN$
- C. $\angle NPT$
- D. $\angle MPN$

- 15 In Diagram 9, PQ and RS are two vertical poles standing on horizontal ground. The angle of elevation of R from P is 35° .

Dalam Rajah 9, PQ dan RS ialah dua batang tiang tegak yang terletak pada tanah mengufuk. Sudut dongakan R dari P ialah 35° .

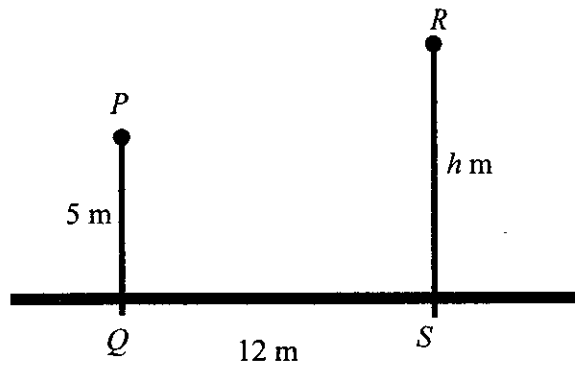


Diagram 9/Rajah 9

Calculate the value of h

Hitungkan nilai h .

- A 12.6
- B 14.8
- C 13.4
- D 16.5

16 Diagram 10 shows the position of point M and N .

Rajah 10 menunjukkan kedudukan titik M dan N .

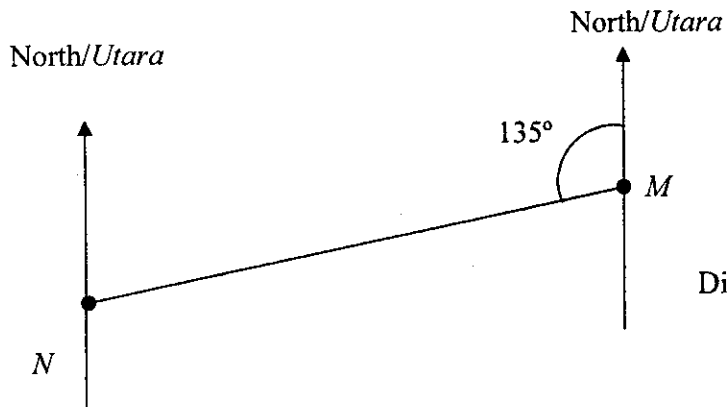


Diagram 10/Rajah 10

Find the bearing of point M from point N .

Carikan bearing titik M dari titik N .

- A. 045°
- B. 055°
- C. 165°
- D. 225°

- 17 In Diagram 11, N is the North Pole, S is the South Pole and NOS is the axis of the earth.
 Dalam Rajah 11, N ialah Kutub Utara, S ialah Kutub Selatan dan NOS ialah paksi bumi.

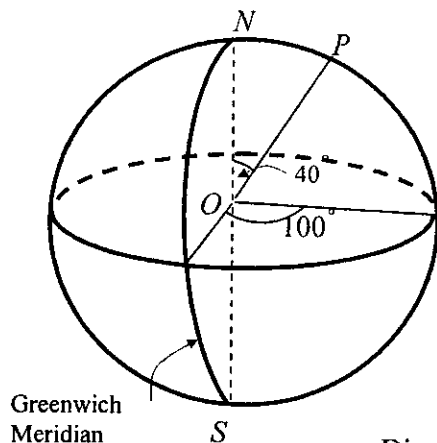


Diagram 11/Rajah 11

The position of P is

Kedudukan P ialah

- A ($40^{\circ}N$, $100^{\circ}E$)
 ($40^{\circ}U$, $100^{\circ}T$)
- B ($40^{\circ}N$, $100^{\circ}W$)
 ($40^{\circ}U$, $100^{\circ}B$)
- C ($50^{\circ}N$, $100^{\circ}E$)
 ($50^{\circ}U$, $100^{\circ}T$)
- D ($50^{\circ}N$, $100^{\circ}W$)
 ($50^{\circ}U$, $100^{\circ}B$)
- 18 Given the location of M is $(0^{\circ}, 40^{\circ}W)$ and N is 5400 nautical miles to the east of M . The longitude of N is
 Diberi lokasi M ialah $(0^{\circ}, 40^{\circ}W)$ dan N ialah 5400 batu nautikal ke timur M . Longitud N ialah
- A $20^{\circ}E$
 $20^{\circ}T$
- B $30^{\circ}E$
 $30^{\circ}T$
- C $40^{\circ}E$
 $40^{\circ}T$
- D $50^{\circ}E$
 $50^{\circ}T$

19 $4(h + 2k)(3h - k) =$

A $12h^2 + 2hk - 2k^2$

B $12h^2 + 20hk - 8k^2$

C $3h^2 - 5hk + 2k^2$

D $3h^2 - 5hk + 8k^2$

20 Given that $ef + 1 = \frac{4e - 3f}{3}$, express f in terms of e .

Diberi $ef + 1 = \frac{4e - 3f}{3}$, ungkap f dalam sebutan e .

A $f = \frac{4e - 1}{3e + 1}$

B $f = \frac{4e - 3}{3e + 1}$

C $f = \frac{4e - 1}{3e + 3}$

D $f = \frac{4e - 3}{3e + 3}$

- 21 Express $\frac{3}{4n} - \frac{5-2n}{8n^2}$ as a single fraction in its simplest form.

Ungkapkan $\frac{3}{4n} - \frac{5-2n}{8n^2}$ sebagai satu pecahan tunggal dalam sebutan termudah.

A $\frac{8n-5}{8n^2}$

B $\frac{4n-5}{8n^2}$

C $\frac{2n-2}{8n^2}$

D $\frac{2n+2}{8n^2}$

- 22 Given that $8-3(2-w) = 9w-2$, find the value of w .

Diberi $8-3(2-w) = 9w-2$, cari nilai w .

A $\frac{1}{2}$

B $\frac{2}{3}$

C $\frac{1}{4}$

D $\frac{2}{5}$

23 $\left(\frac{1}{4}\right)^{-3} =$

A 12

B 64

C $\frac{1}{12}$

D $\frac{1}{64}$

- 24 Simplify $m \times (3m^{-1})^2 \div (3m^{-5})$.
Ringkaskan $m \times (3m^{-1})^2 \div (3m^{-5})$.

- A $2m^3$
- B $2m^4$
- C $3m^3$
- D $3m^4$

- 25 List all the integers x that satisfy both the simultaneous linear inequalities $5 - x < 3$ and $\frac{x}{2} + 3 \leq 5$.

Senaraikan semua integer x yang memuaskan kedua-dua ketaksamaan $5 - x < 3$ dan $\frac{x}{2} + 3 \leq 5$.

- A 2,3
- B 3,4
- C 3,4,5
- D 2,3,4,5

- 26 In Diagram 12, the histogram shows year four pupils pocket money on a certain day.
 Dalam rajah 12, histogram menunjukkan wang poket yang dibawa oleh murid tahun empat pada hari tertentu.

Frequency/kekerapan

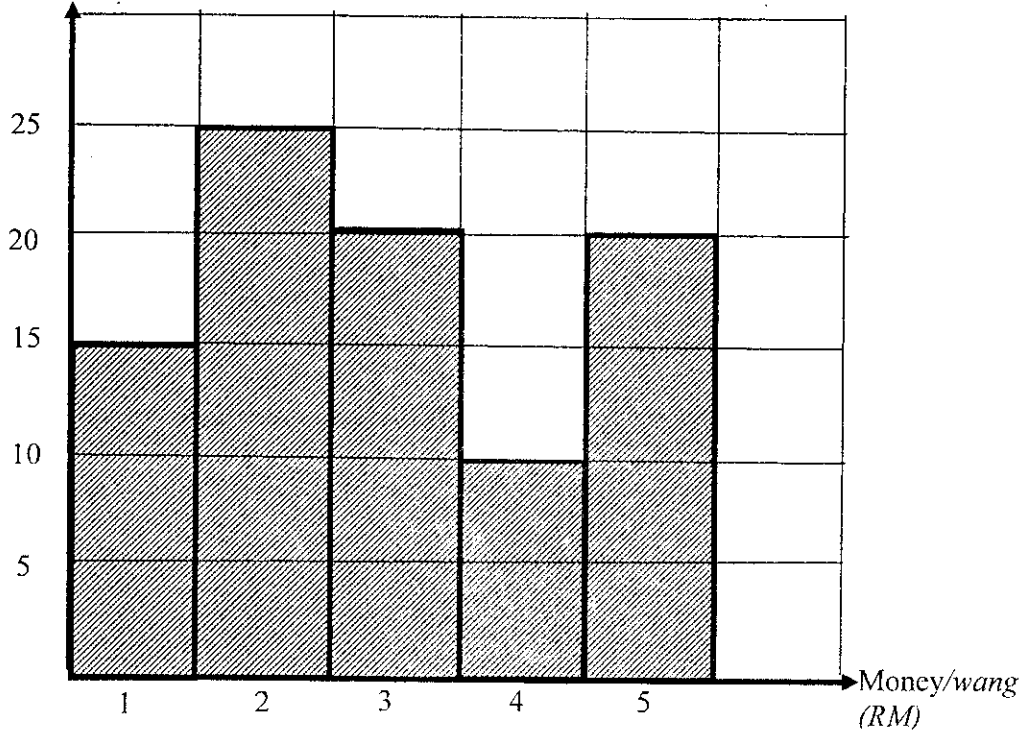


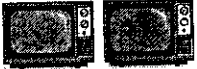

Diagram 12/Rajah 12

Calculate the mean, in RM of the pocket money for a pupil.

Kirakan min, dalam RM, wang yang dibawa oleh seorang murid.

- A RM1.94
- B RM2.04
- C RM2.94
- D RM3.24.

- 27 The pictograph in Diagram 13 shows the number of television sets sold by a shop in three particular days. The number of television sets sold on Tuesday is not known.
- Piktograf dalam Rajah 13 menunjukkan bilangan televisyen yang dijual pada 3 hari tertentu. Bilangan televisyen yang berjaya dijual pada hari Selasa tidak dinyatakan.*

Sunday/ <i>Ahad</i>	
Monday/ <i>Isnin</i>	
Tuesday/ <i>Selasa</i>	



Represents 5 units/ *Mewakili 5 unit*

Diagram 13/*Rajah 13*

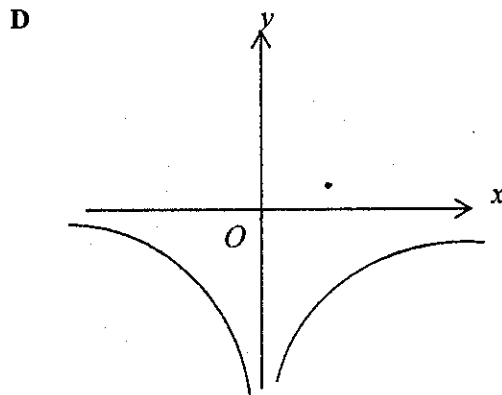
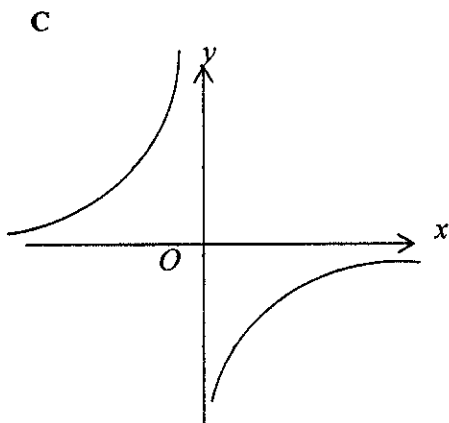
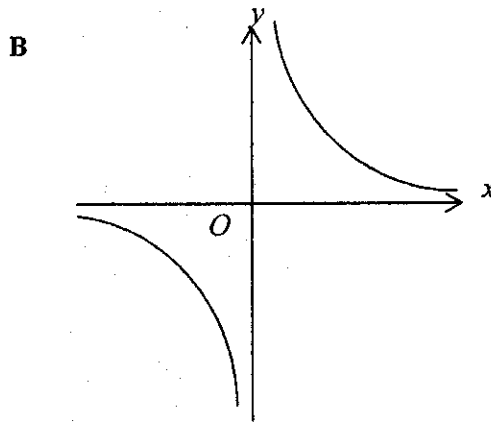
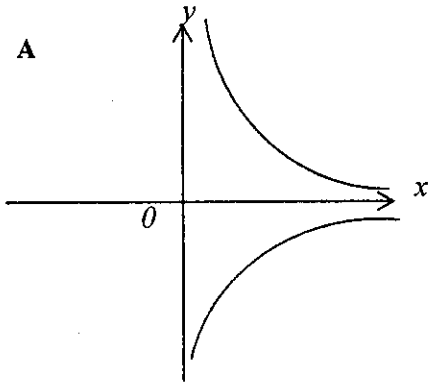
Sales on Sunday makes up 20 % of the total sale of the three days. The number of television sets sold on Tuesday is

Jualan pada hari Ahad adalah 20% daripada jumlah jualan untuk tiga hari itu. Bilangan televisyen yang dijual pada hari Selasa ialah

- A 10
- B 15
- C 25
- D 30

- 28 Which of the following graphs represents $y = -\frac{5}{x}$?

Antara yang berikut , yang manakah mewakili graf bagi $y = -\frac{5}{x}$?



- 29 List all the subsets of set $M = \{a, b\}$.

Senaraikan semua subset bagi set $M = \{a, b\}$.

- A $\{a\}, \{b\}$
 B $\{\}, \{a\}, \{b\}$
 C $\{a\}, \{b\}, \{a, b\}, \{b, a\}$
 D $\{a\}, \{b\}, \{a, b\}, \{\}$
- 30 Diagram 14 is a Venn Diagram showing the universal set $\xi = \{ \text{Form Five Students} \}$, Set $M = \{ \text{students who are good in Malay language} \}$ and set $N = \{ \text{students who are good in English language} \}$.

Rajah 14 ialah Gambar Rajah Venn yang menunjukkan set semesta, $\xi = \{ \text{Murid-murid Tingkatan Lima} \}$, set $M = \{ \text{Murid-murid yang bagus Bahasa Melayu} \}$ dan set $N = \{ \text{Murid-murid yang bagus Bahasa Inggeris} \}$.

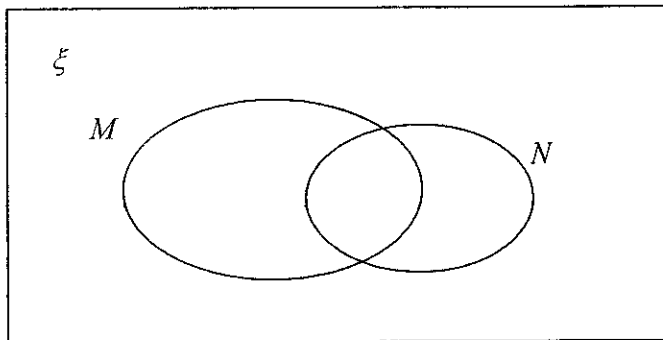


Diagram 14/Rajah 14

Given $n(\xi) = 200$, $n(M) = 120$, $n(N) = 90$ and $n(M \cap N) = 30$. Find the number of students who are not good in both of the languages.

Diberi $n(\xi) = 200$, $n(M) = 120$, $n(N) = 90$ dan $n(M \cap N) = 30$. Cari bilangan murid yang tidak bagus dalam kedua-dua bahasa.

- A 10
 B 20
 C 30
 D 40

- 31 Given the universal set $\xi = \{x : 3 \leq x \leq 12, x \text{ is an integer}\}$, set $K = \{x : x \text{ is an odd number}\}$ and set $L = \{x : x \text{ is multiple of } 3\}$. Find $n(K \cup L)$.

Diberi set Semesta $\xi = \{x : 3 \leq x \leq 12, x \text{ ialah integer}\}$, set $K = \{x : x \text{ ialah nombor ganjil}\}$ dan set $L = \{x : x \text{ ialah nombor gandaan } 3\}$. Cari nilai bagi $n(K \cup L)$.

- A 2
B 3
C 7
D 9
- 32 The gradient of the straight line $3x + 4y = 12$ is
Kecerunan bagi garis lurus $3x + 4y = 12$ ialah

A $-\frac{3}{4}$

B $\frac{3}{4}$

C $\frac{4}{3}$

D 3

- 33 In Diagram 15, MN is a straight line with gradient $\frac{1}{4}$.

Dalam rajah 15, MN ialah garis lurus dengan kecerunan $\frac{1}{4}$.

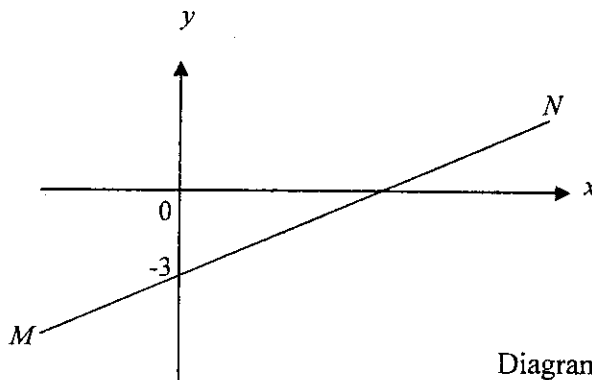


Diagram 15/Rajah 15

Find the x -intercept of the straight line MN .

Carikan pintasan $-x$ bagi garis lurus MN .

- A $\frac{1}{2}$
- B $\frac{3}{4}$
- C 12
- D 15

- 33 An electronic factory produces 10 000 bulbs in a month. 50 bulbs are found to be faulty. If a bulb is chosen randomly, find the probability that the bulb is faulty.

Sebuah kilang elektronik mengeluarkan 10 000 mentol dalam sebulan. Didapati 50 biji mentol rosak. Jika sebiji mentol dipilih secara rawak, berapakah kebarangkalian mentol itu rosak.

- A $\frac{1}{500}$
- B $\frac{1}{100}$
- C $\frac{1}{200}$
- D $\frac{1}{20}$

- 35 Table 1 shows the monthly income of 200 families

Jadual 1 menunjukkan pendapatan bulanan bagi 200 keluarga.

Income (RM) / <i>Pendapatan</i>	Frequency <i>Kekerapan</i>
501-750	20
751-1000	50
1001-1250	80
1251-1500	35
1501-1750	15

Table 1/*Jadual 1*

If a family is chosen randomly, find the probability that the monthly income of the family is more than RM 1250.

Jika sebuah keluarga dipilih secara rawak, carikan kebarangkalian bahawa keluarga terpilih itu mempunyai pendapatan bulanan lebih daripada RM 1250.

- A $\frac{1}{20}$
- C $\frac{1}{4}$
- B $\frac{1}{5}$
- D $\frac{3}{4}$

- 36 Given that m is directly proportional to n^2 and $m = 32$ when $n = 4$, express m in terms of n .

Diberi bahawa m berubah secara langsung dengan n^2 dan $m = 32$ apabila $n = 4$, ungkapkan m dalam sebutan n .

- A $m = n^2$
- B $m = 2n^2$
- C $m = 4n^2$
- D $m = 8n^2$

- 37 Given that P varies inversely with \sqrt{q} . If $P = 8$ when $q = 36$, express P in terms of q .
Diberi bahawa P berubah secara songsang dengan \sqrt{q} . Jika $P = 8$ apabila $q = 36$, ungkapkan P dalam sebutan q .

A $P = \frac{4}{3}\sqrt{q}$

B $P = \frac{2}{\sqrt{q}}$

C $P = \frac{4}{3\sqrt{q}}$

D $P = \frac{48}{\sqrt{q}}$

- 38 Given $T \propto \frac{v^3}{w}$ and $T = 18$ when $v = 6$ and $w = 6$. Calculate the value of w when $T = 8$ and $v = -2$.

Diberi $T \propto \frac{v^3}{w}$ dan $T = 18$ apabila $v = 6$ dan $w = 6$. Hitungkan nilai w apabila $T = 8$ and $v = -2$.

A $-\frac{1}{2}$

B -2

C $\frac{1}{2}$

D 2

39 Given $\begin{pmatrix} 2 & 0 \\ 3 & -1 \end{pmatrix} \begin{pmatrix} 6 \\ w \end{pmatrix} = \begin{pmatrix} 12 \\ 5w \end{pmatrix}$, calculate the value of w .

Diberi $\begin{pmatrix} 2 & 0 \\ 3 & -1 \end{pmatrix} \begin{pmatrix} 6 \\ w \end{pmatrix} = \begin{pmatrix} 12 \\ 5w \end{pmatrix}$, hitungkan nilai w .

- A 0
- B 3
- C $\frac{9}{2}$
- D $\frac{18}{5}$

40 $\begin{pmatrix} 3 \\ -2 \end{pmatrix} \begin{pmatrix} 2 & -3 \end{pmatrix} =$

- A $\begin{pmatrix} 6 & 6 \end{pmatrix}$
- B $\begin{pmatrix} 12 \end{pmatrix}$
- C $\begin{pmatrix} 6 & -9 \\ -4 & 6 \end{pmatrix}$
- D $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$

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. Each question is followed by four alternative answers, **A, B, C** or **D**. For each question, choose **one** answer only. Blacken your answer on the objective answer sheet provided.
*Tiap-tiap soalan diikuti oleh empat pilihan jawapan, iaitu **A, B, C** dan **D**. Bagi setiap soalan, pilih **satu** jawapan sahaja. Hitamkan jawapan anda pada kertas jawapan objektif yang disediakan.*
4. If you wish to change your answer, erase the blackened mark that you have made. Then blacken the new answer.
Jika anda hendak menukar jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.
5. The diagrams in the questions provided are not drawn to scale unless stated.
Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
6. A list of formulae is provided on pages 2 to 4.
Satu senarai rumus disediakan di halaman 2 hingga 4.
7. A booklet of four-figure mathematical tables is provided.
Sebuah buku sifir matematik empat angka disediakan.
8. You may use a non-programmable scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.