

SULIT



**LEMBAGA PEPERIKSAAN  
KEMENTERIAN PELAJARAN MALAYSIA**

**SIJIL PELAJARAN MALAYSIA 2011**

**1449/1**

**MATHEMATICS**

**Kertas 1**

**Nov./Dis.**

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

**Satu jam lima belas minit**

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**JANGAN BUKA KERTAS SOALANINI SEHINGGA DIBERITAHU**

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

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Kertas soalan ini mengandungi 32 halaman bercetak.

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

**RELATIONS  
PERKAITAN**

$$1 \quad a^m \times a^n = a^{m+n}$$

$$10 \quad \text{Pythagoras Theorem}\\ \text{Teorem Pithagoras}$$

$$2 \quad a^m \div a^n = a^{m-n}$$

$$c^2 = a^2 + b^2$$

$$3 \quad (a^m)^n = a^{mn}$$

$$11 \quad P(A) = \frac{n(A)}{n(S)}$$

$$4 \quad A^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$$

$$12 \quad P(A') = 1 - P(A)$$

5 Distance / Jarak

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

$$13 \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

6 Midpoint / Titik tengah

$$(x, y) = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$14 \quad m = -\frac{y\text{-intercept}}{x\text{-intercept}}\\ m = -\frac{\text{pintasan}\text{-}y}{\text{pintasan}\text{-}x}$$

$$7 \quad \text{Average speed} = \frac{\text{distance travelled}}{\text{time taken}}$$

$$\text{Purata laju} = \frac{\text{jarak yang dilalui}}{\text{masa yang diambil}}$$

$$8 \quad \text{Mean} = \frac{\text{sum of data}}{\text{number of data}}$$

$$\text{Min} = \frac{\text{hasil tambah nilai data}}{\text{bilangan data}}$$

$$9 \quad \text{Mean} = \frac{\text{sum of (classmark} \times \text{frequency)}}{\text{sum of frequencies}}$$

$$\text{Min} = \frac{\text{hasil tambah (nilai titik tengah kelas} \times \text{kekerapan)}}{\text{hasil tambah kekerapan}}$$

**SHAPES AND SPACE  
BENTUK DAN RUANG**

1 Area of trapezium =  $\frac{1}{2} \times$  sum of parallel sides  $\times$  height

*Luas trapezium =  $\frac{1}{2} \times$  hasil tambah sisi selari  $\times$  tinggi*

2 Circumference of circle =  $\pi d = 2\pi r$

*Lilitan bulatan =  $\pi d = 2\pi j$*

3 Area of circle =  $\pi r^2$

*Luas bulatan =  $\pi j^2$*

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 =  $\frac{1}{3} \times$  base area  $\times$  height

*Isi padu piramid tegak =  $\frac{1}{3} \times$  luas tapak  $\times$  tinggi*

11 Sum of interior angles of a polygon

*Hasil tambah sudut pedalaman poligon  
=  $(n - 2) \times 180^\circ$*

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

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

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

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

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

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

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

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

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***HALAMAN KOSONG***

- 1** Which number is rounded off correctly to two significant figures?  
*Nombor yang manakah dibundarkan betul kepada dua angka bererti?*

| <b>Number<br/><i>Nombor</i></b> | <b>Rounded off correctly to two significant figures<br/><i>Dibundarkan betul kepada dua angka bererti</i></b> |
|---------------------------------|---|
| <b>A</b><br>0.0126              | 0.013   |
| <b>B</b><br>0.0136              | 0.013   |
| <b>C</b><br>7 230               | 7 300   |
| <b>D</b><br>7 360               | 7 300   |

- 2**  $0.0027$  is written as  $m \times 10^n$  in the standard form.

Find the value of  $m$  and of  $n$ .

$0.0027$  ditulis sebagai  $m \times 10^n$  dalam bentuk piawai.

Cari nilai  $m$  dan nilai  $n$ .

- A**  $m = 2.7, n = -3$
- B**  $m = 2.7, n = 3$
- C**  $m = 27, n = -4$
- D**  $m = 27, n = 4$

**3** 
$$\frac{3.6 \times 10^{-6}}{0.0002} =$$

- A**  $1.8 \times 10^{-10}$
- B**  $1.8 \times 10^{-9}$
- C**  $1.8 \times 10^{-3}$
- D**  $1.8 \times 10^{-2}$

- 4 It is given that 20 solid metal cylinders each with a radius of 70 cm and a height of 300 cm, are melted to make 50 identical solid spheres.

Find the volume, in  $\text{cm}^3$ , of each solid sphere.

*Diberi bahawa 20 buah pepejal logam berbentuk silinder, setiap satu dengan jejari 70 cm dan tinggi 300 cm, telah dileburkan untuk membentuk 50 buah pepejal sfera yang serupa.*

*Cari isi padu, dalam  $\text{cm}^3$ , setiap pepejal sfera itu.*

A  $1.85 \times 10^6$

B  $4.31 \times 10^5$

C  $5.28 \times 10^4$

D  $6.16 \times 10^3$

- 5 What is the value of the digit 3, in base ten, of the number  $1302_5$ ?

*Apakah nilai digit 3, dalam asas sepuluh, bagi nombor  $1302_5$ ?*

A 25

B 75

C 125

D 375

6  $10110_2 + 111_2 =$

A  $10101_2$

B  $11001_2$

C  $11011_2$

D  $11101_2$

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- 7 In Diagram 1,  $PQRTU$  is an irregular polygon.  $PUS$ ,  $QUT$  and  $RST$  are straight lines.  
*Dalam Rajah 1,  $PQRTU$  ialah poligon tidak sekata.  $PUS$ ,  $QUT$  dan  $RST$  ialah garis lurus.*

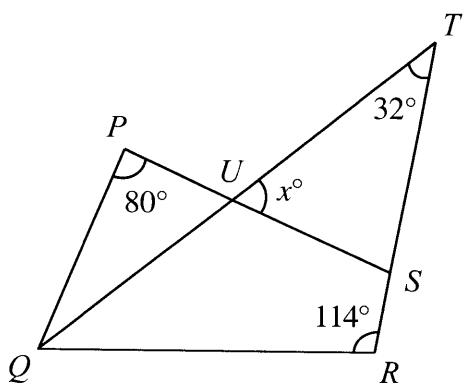


Diagram 1  
*Rajah 1*

Given  $\angle TQR$  is twice  $\angle PQT$ , find the value of  $x$ .

*Diberi  $\angle TQR$  ialah dua kali  $\angle PQT$ , cari nilai  $x$ .*

- A 83
- B 78
- C 74
- D 68

8 In Diagram 2,  $PQR$  is the tangent to the circle  $TQS$  with centre  $O$ , at  $Q$ .

Dalam Rajah 2,  $PQR$  ialah tangen kepada bulatan  $TQS$  berpusat  $O$ , di  $Q$ .

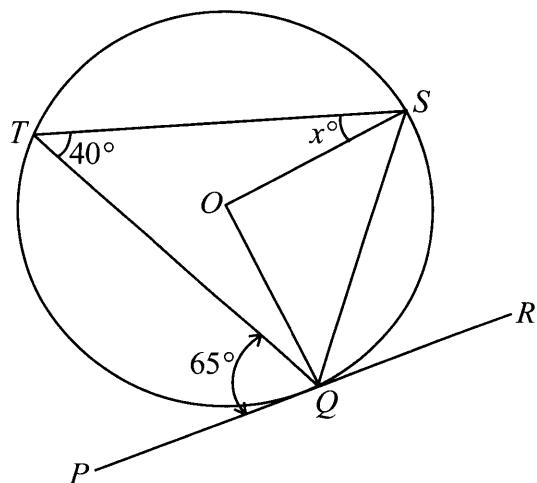


Diagram 2  
Rajah 2

Find the value of  $x$ .

Cari nilai  $x$ .

- A 10
- B 15
- C 20
- D 25

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9 Diagram 3 shows five objects, **F**, **A**, **B**, **C** and **D**, drawn on a Cartesian plane.

Rajah 3 menunjukkan lima objek, **F**, **A**, **B**, **C** dan **D**, dilukis pada satah Cartesan.

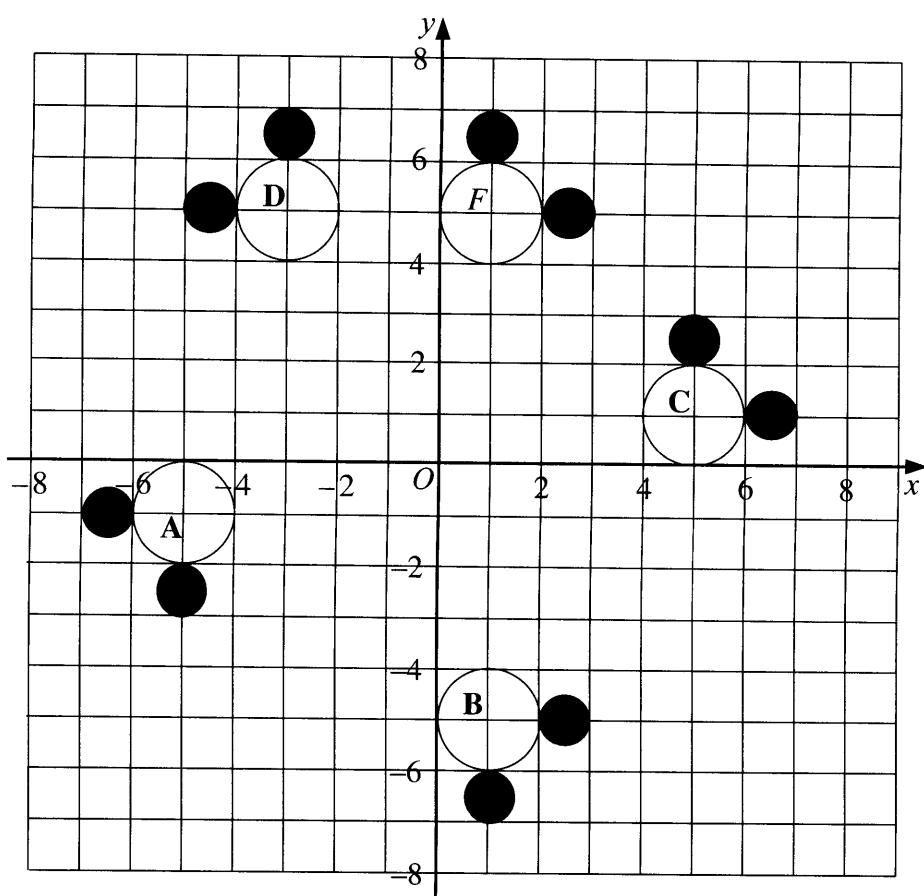


Diagram 3  
Rajah 3

Which of the objects, **A**, **B**, **C** or **D**, is the image of object **F** under a reflection in the line  $y = -x$ ?

Antara objek **A**, **B**, **C** dan **D**, yang manakah imej bagi objek **F** di bawah pantulan pada garis  $y = -x$ ?

- 10** Under an enlargement, the area of an object is  $4\pi \text{ cm}^2$  and the area of its image is  $16\pi \text{ cm}^2$ .

Find the scale factor of the enlargement.

*Di bawah suatu pembesaran, luas suatu objek ialah  $4\pi \text{ cm}^2$  dan luas imejnya ialah  $16\pi \text{ cm}^2$ .*

*Cari faktor skala pembesaran itu.*

**A** 4

**B** 2

**C**  $\frac{1}{2}$

**D**  $\frac{1}{4}$

- 11** Diagram 4 shows a right angled triangle  $PQR$ .  $PRS$  is a straight line.

*Rajah 4 menunjukkan sebuah segi tiga bersudut tegak  $PQR$ .  $PRS$  ialah garis lurus.*

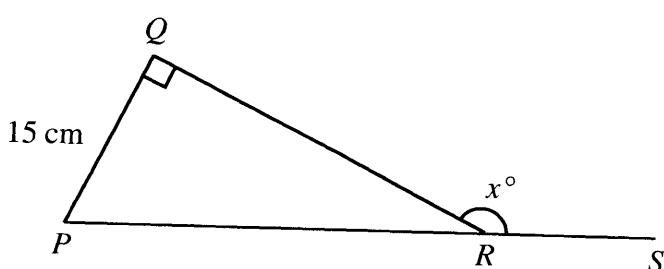


Diagram 4  
Rajah 4

Given  $\sin x^\circ = \frac{5}{13}$ , calculate the length, in cm, of  $QR$ .

*Diberi  $\sin x^\circ = \frac{5}{13}$ , hitung panjang, dalam cm, bagi  $QR$ .*

**A** 12

**B** 24

**C** 36

**D** 39

- 12 Diagram 5 shows a sailing boat. The sail  $TPN$  has the shape of a right angled triangle and  $MNPQ$  is a straight line.

Rajah 5 menunjukkan sebuah kapal layar. Layar  $TPN$  berbentuk segi tiga bersudut tegak dan  $MNPQ$  ialah garis lurus.

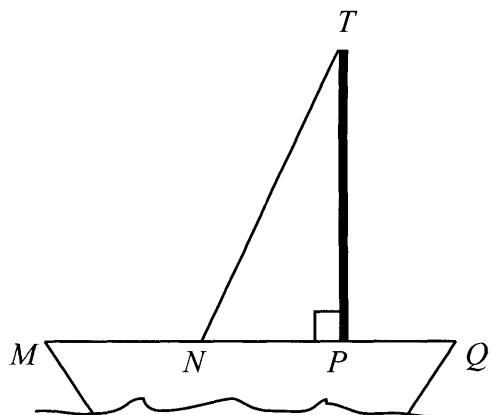


Diagram 5  
Rajah 5

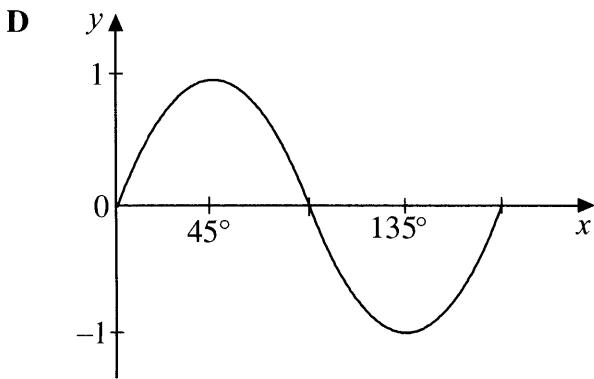
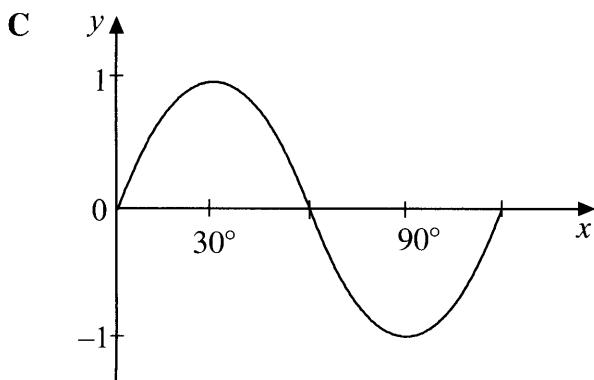
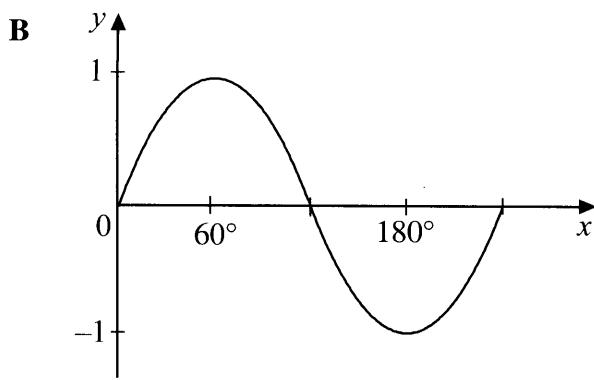
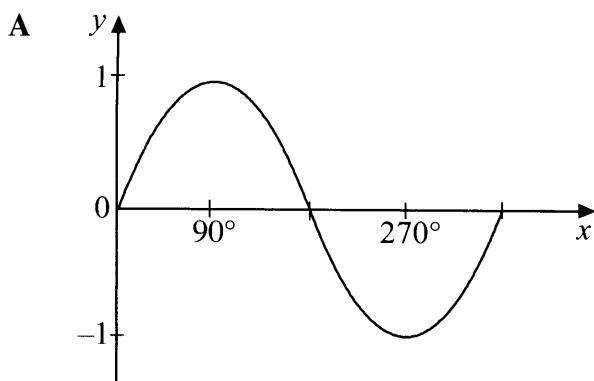
Given that  $NP = 4$  m and  $\cos \angle MNT = -\frac{8}{17}$ , find the height, in m, of  $TP$ .

Diberi  $NP = 4$  m dan  $\cos \angle MNT = -\frac{8}{17}$ , cari tinggi, dalam m,  $TP$ .

- A 7.5
- B 8.5
- C 15
- D 16

13 Which graph represents part of  $y = \sin x^\circ$  ?

Graf manakah yang mewakili sebahagian daripada  $y = \sin x^\circ$ ?



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14 Diagram 6 shows a cuboid with a horizontal base  $PQRS$ .

Rajah 6 menunjukkan sebuah kuboid dengan tapak mengufuk  $PQRS$ .

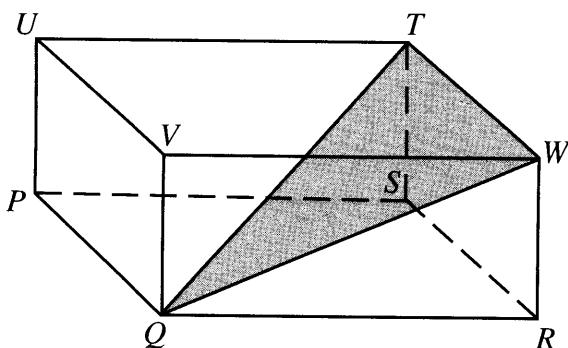


Diagram 6  
Rajah 6

Name the angle between the plane  $TWQ$  and the plane  $TSRW$ .

Namakan sudut di antara satah  $TWQ$  dengan satah  $TSRW$ .

- A  $\angle WQS$
- B  $\angle WQR$
- C  $\angle QWR$
- D  $\angle QWS$

- 15** Diagram 7 shows two vertical towers on a horizontal plane.  $P$  and  $Q$  are two points on the two towers.

Rajah 7 menunjukkan dua menara tegak di atas satah mengufuk.  $P$  dan  $Q$  adalah dua titik pada dua menara itu.

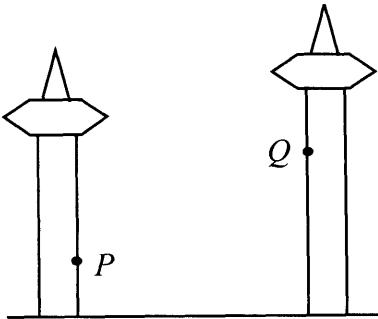


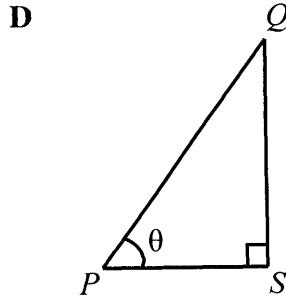
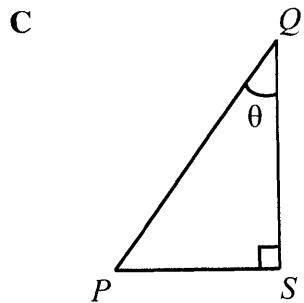
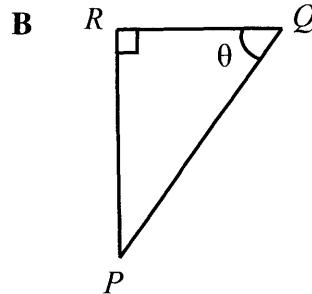
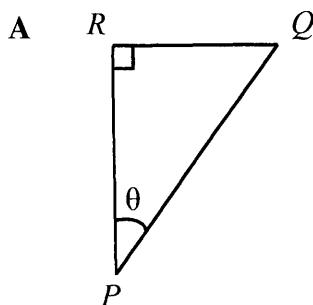
Diagram 7  
Rajah 7

Point  $R$  is vertically above  $P$ , at the same level as  $Q$ . Point  $S$  is vertically below  $Q$ , at the same level as  $P$ .

Which diagram shows the angle of elevation,  $\theta$ , of point  $Q$  from point  $P$ ?

*Titik  $R$  berada tegak di atas  $P$ , pada paras yang sama dengan  $Q$ . Titik  $S$  berada tegak di bawah  $Q$ , pada paras yang sama dengan  $P$ .*

*Rajah yang manakah menunjukkan sudut dongakan,  $\theta$ , titik  $Q$  dari titik  $P$ ?*



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- 16 Diagram 8 shows a man in a lookout station. The angle of depression of a tent from his eye is  $40^\circ$ . The tent is  $y$  m from the base of the lookout station.

Rajah 8 menunjukkan seorang lelaki berada di stesen peninjau. Sudut tunduk sebuah khemah dari matanya ialah  $40^\circ$ . Khemah itu adalah  $y$  m dari tapak stesen peninjau itu.

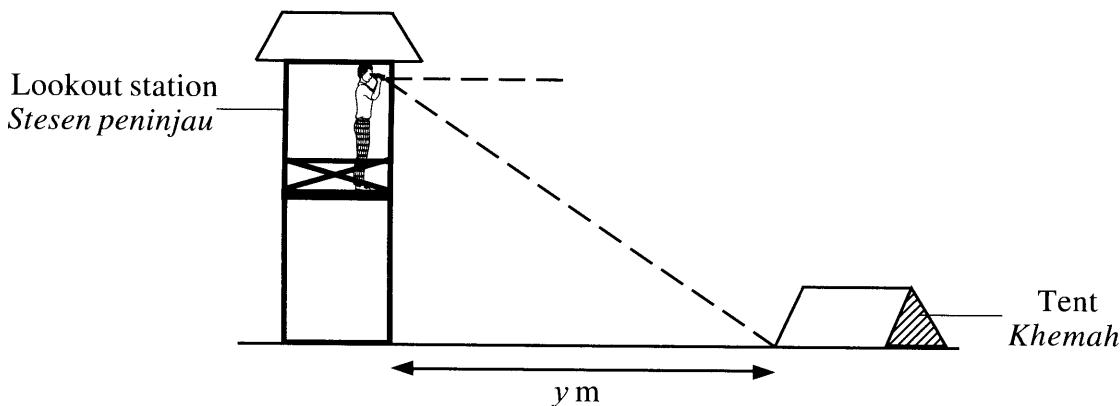


Diagram 8  
Rajah 8

It is given that his eye level is 6 m above the horizontal ground.

Calculate the value of  $y$ , in m.

Diberi bahawa aras matanya adalah 6 m dari tanah mengufuk.

Hitung nilai  $y$ , dalam m.

- A 4.596
- B 5.035
- C 7.151
- D 9.334

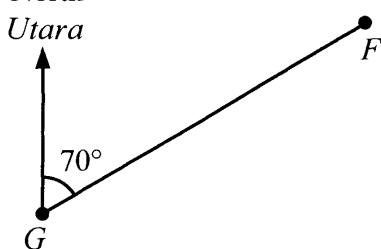
**17** It is given that points  $F$  and  $G$  lie on a horizontal plane. The bearing of  $F$  from  $G$  is  $070^\circ$ .

Which diagram shows the correct locations of  $F$  and  $G$ ?

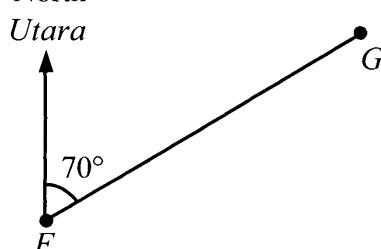
*Diberi bahawa titik  $F$  dan titik  $G$  terletak pada suatu satah mengufuk. Bearing  $F$  dari  $G$  ialah  $070^\circ$ .*

*Rajah manakah yang menunjukkan kedudukan yang betul bagi  $F$  dan  $G$ ?*

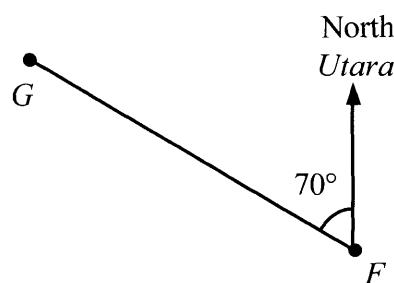
**A**



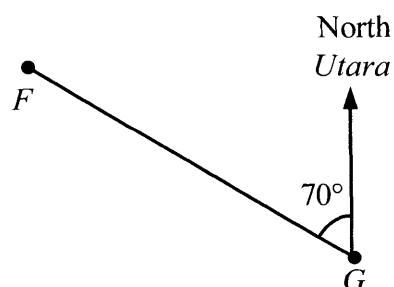
**B**



**C**



**D**



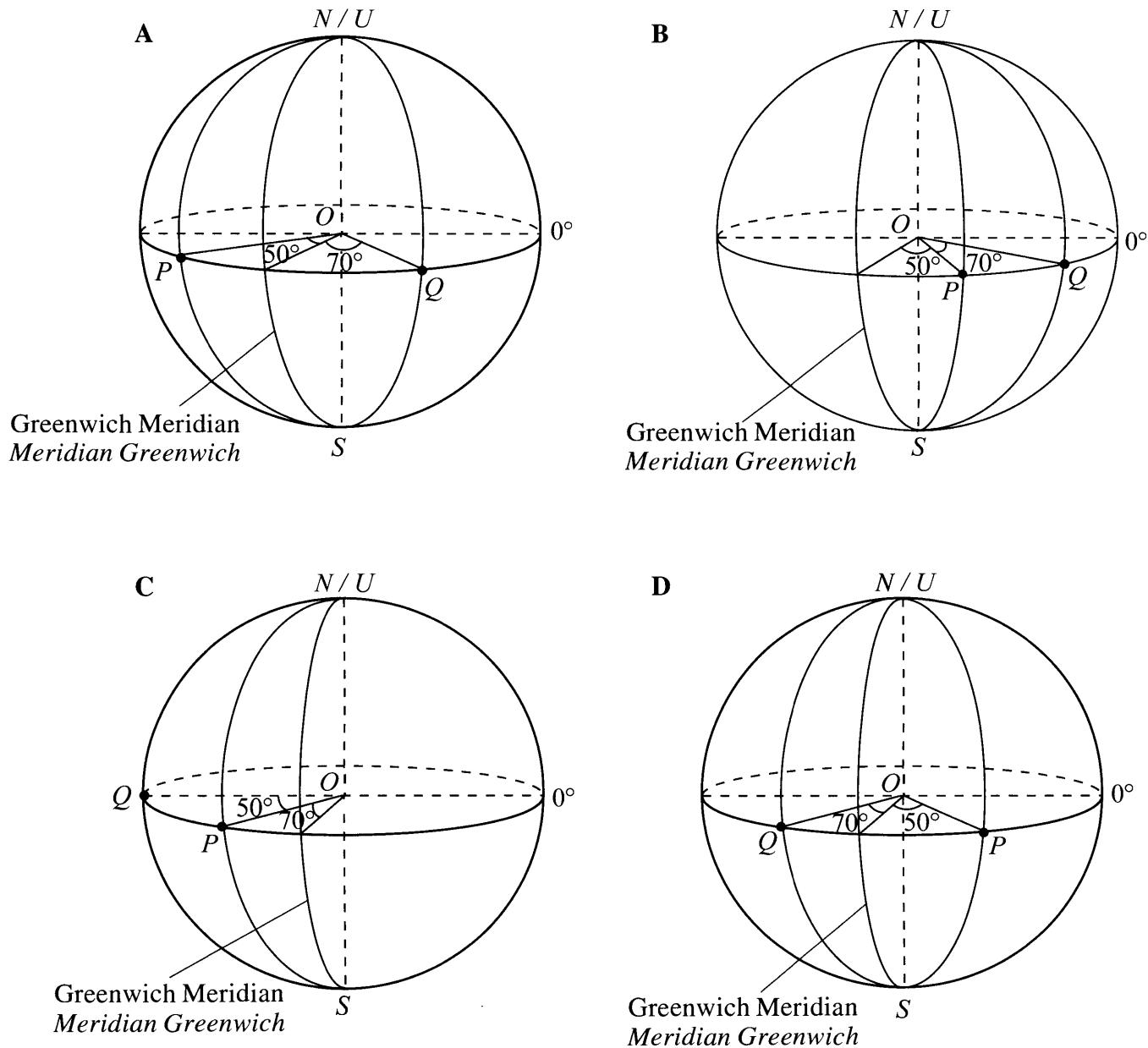
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- 18 N is the North Pole, S is the South Pole and O is the centre of the earth. P and Q are two points on the equator. The longitude of P is  $50^\circ E$  and the longitude of Q is  $70^\circ W$ .

Which diagram shows the correct locations of P and Q?

*U ialah Kutub Utara, S ialah Kutub Selatan dan O ialah pusat bumi. P dan Q ialah dua titik pada khatulistiwa. Longitud P ialah  $50^\circ T$  dan longitud Q ialah  $70^\circ B$ .*

*Rajah manakah yang menunjukkan kedudukan yang betul bagi P dan Q?*



19  $4x(x+y) - (-x-3y)^2 =$

A  $3x^2 - 2xy - 9y^2$

B  $3x^2 - 2xy - 3y^2$

C  $5x^2 - 2xy + 9y^2$

D  $5x^2 - 2xy + 3y^2$

20 Express  $\frac{2mn+4n}{9-n^2} \div \frac{6mn}{3-n}$  as a single fraction in its simplest form.

Ungkapkan  $\frac{2mn+4n}{9-n^2} \div \frac{6mn}{3-n}$  sebagai satu pecahan tunggal dalam bentuk termudah.

A  $\frac{3m(3-n)}{m+2}$

B  $\frac{3m(3+n)}{m+2}$

C  $\frac{m+2}{3m(3-n)}$

D  $\frac{m+2}{3m(3+n)}$

- 21** Given  $2t = \frac{t-1}{m-1}$ , express  $t$  in terms of  $m$ .

*Diberi*  $2t = \frac{t-1}{m-1}$ , *ungkapkan*  $t$  *dalam sebutan*  $m$ .

**A**  $t = \frac{1}{3-2m}$

**B**  $t = \frac{1}{2m-3}$

**C**  $t = \frac{3}{1-2m}$

**D**  $t = \frac{3}{2m-3}$

- 22** Given  $\frac{y-6}{3} - \frac{y-4}{2} = 1$ , calculate the value of  $y$ .

*Diberi*  $\frac{y-6}{3} - \frac{y-4}{2} = 1$ , *hitung nilai*  $y$ .

**A**  $-1$

**B**  $-3$

**C**  $-6$

**D**  $-8$

- 23** Simplify:

*Ringkaskan:*

$$\frac{\left(3m^4 \times 2n^{\frac{1}{2}}\right)^2}{m^3}$$

**A**  $6mn$

**B**  $6m^2n$

**C**  $36m^2n$

**D**  $36m^5n$

24  $5^{-\frac{1}{3}} =$

A  $-\frac{1}{5^{\frac{1}{3}}}$

B  $\frac{1}{5^{\frac{1}{3}}}$

C  $-\frac{1}{5^3}$

D  $\frac{1}{5^3}$

25 List all the integers  $y$  that satisfy both the simultaneous linear inequalities

$$\frac{3}{2}y \geq 9 \text{ and } y+1 < 10.$$

*Senaraikan semua integer  $y$  yang memuaskan kedua-dua ketaksamaan linear serentak*

$$\frac{3}{2}y \geq 9 \text{ dan } y+1 < 10.$$

- A 7, 8  
B 6, 7, 8  
C 7, 8, 9  
D 6, 7, 8, 9

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**26** Diagram 9 is a bar chart showing the time spent for five activities in a week.

*Rajah 9 ialah carta palang yang menunjukkan penggunaan masa untuk lima aktiviti dalam seminggu.*

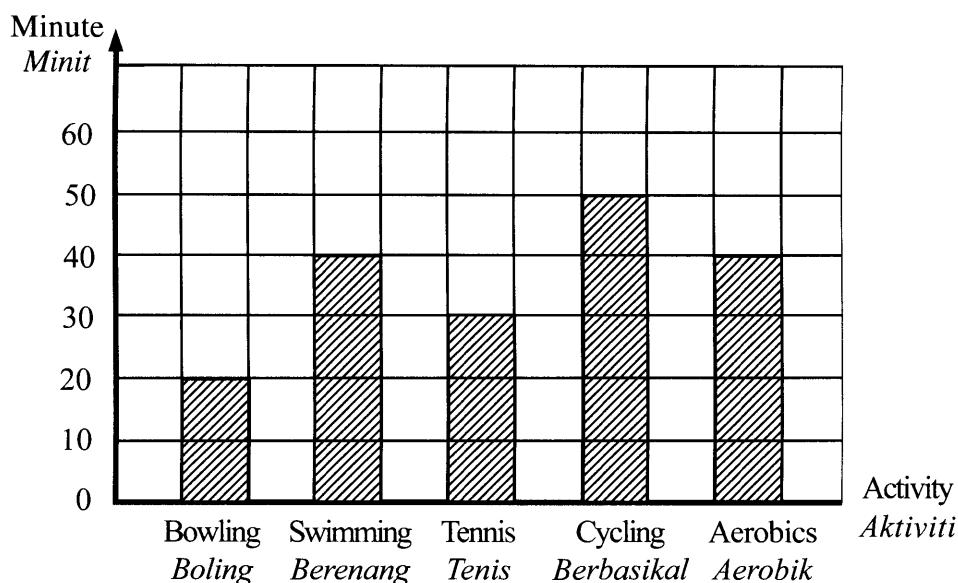


Diagram 9  
Rajah 9

If the data is represented by a pie chart, calculate the maximum difference in the sector angles between any two of the activities.

*Jika data itu diwakili oleh carta pai, hitung perbezaan maksimum sudut sektor antara mana-mana dua aktiviti itu.*

- A**  $30^\circ$
- B**  $40^\circ$
- C**  $60^\circ$
- D**  $100^\circ$

**27** Table 1 shows the scores of 60 students in a school contest.

*Jadual 1 menunjukkan skor yang diperoleh 60 orang murid dalam suatu pertandingan di sebuah sekolah.*

|                                |    |    |    |    |    |
|--------------------------------|----|----|----|----|----|
| <b>Score<br/>Skor</b>          | 10 | 20 | 30 | 40 | 50 |
| <b>Frequency<br/>Kekerapan</b> | 10 | 11 | 17 | 10 | 12 |

Table 1  
*Jadual 1*

Determine the score mode.

*Tentukan skor mod.*

- A** 12
- B** 17
- C** 30
- D** 50

**28** Diagram 10 shows a graph on a Cartesian plane.

*Rajah 10 menunjukkan suatu graf pada satah Cartesan.*

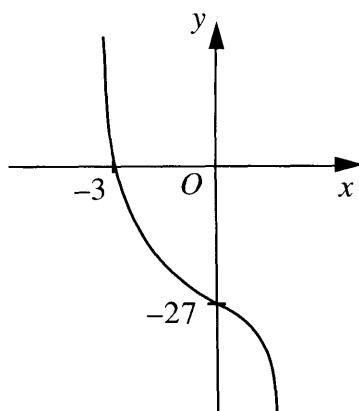


Diagram 10  
*Rajah 10*

Which of the following is the equation of the graph?

*Antara yang berikut, yang manakah adalah persamaan bagi graf itu?*

- A**  $y = x^3 - 27$
- B**  $y = -x^3 - 27$
- C**  $y = 3x^2 - 27$
- D**  $y = -3x^2 - 27$

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**SULIT**

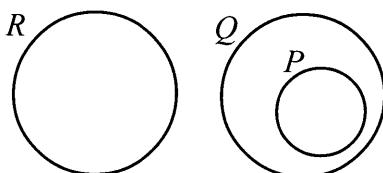
29 It is given that the universal set,  $\xi = P \cup Q \cup R$ ,  $Q \subset P$  and  $P \cap R = \emptyset$ .

Which Venn diagram represents these relationship?

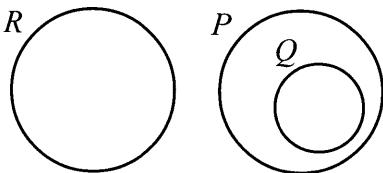
Diberi bahawa set semesta,  $\xi = P \cup Q \cup R$ ,  $Q \subset P$  dan  $P \cap R = \emptyset$ .

Gambar rajah Venn manakah yang mewakili hubungan ini?

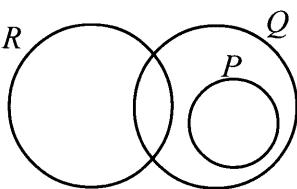
A



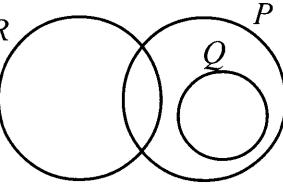
B



C



D



- 30** It is given that set  $P = \{1, 3, 5, 7, 9, 11\}$ , set  $Q = \{2, 4, 6, 8, 10, 12\}$  and set  $R = \{2, 3, 5, 7, 11\}$ .

List all the elements of set  $P \cup (R \cap Q)$ .

Diberi bahawa set  $P = \{1, 3, 5, 7, 9, 11\}$ , set  $Q = \{2, 4, 6, 8, 10, 12\}$  dan set  $R = \{2, 3, 5, 7, 11\}$ .

Senaraikan semua unsur set  $P \cup (R \cap Q)$ .

- A {2}
- B {3, 5, 7, 11}
- C {1, 2, 3, 5, 7, 9, 11}
- D {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}

- 31** Diagram 11 is a Venn diagram showing the number of quiz participants in set  $P$  and set  $Q$ . Given that the universal set,  $\xi = P \cup Q$ , set  $P = \{\text{Mathematics quiz participants}\}$  and set  $Q = \{\text{Science quiz participants}\}$ .

Rajah 11 ialah gambar rajah Venn yang menunjukkan bilangan peserta kuiz dalam set  $P$  dan set  $Q$ . Diberi bahawa set semesta,  $\xi = P \cup Q$ , set  $P = \{\text{peserta kuiz Matematik}\}$  dan set  $Q = \{\text{peserta kuiz Sains}\}$ .

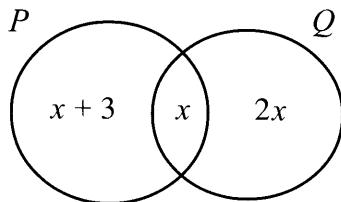


Diagram 11  
Rajah 11

If the number of participants who participate in only one quiz is 21, find the total number of the participants.

Jika bilangan peserta yang mengambil bahagian hanya satu kuiz sahaja ialah 21 orang, cari jumlah semua peserta itu.

- A 27
- B 29
- C 33
- D 35

[Lihat halaman sebelah  
SULIT]

- 32 Diagram 12 shows a straight line  $PQ$  drawn on a Cartesian plane.

Rajah 12 menunjukkan garis lurus  $PQ$  dilukis pada suatu satah Cartesan.

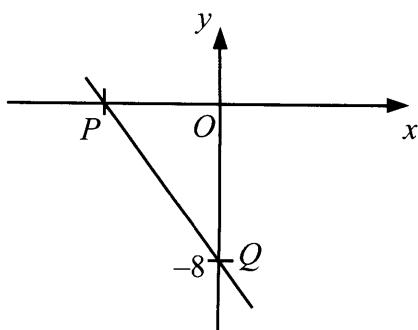


Diagram 12  
Rajah 12

It is given that the distance of  $PQ$  is 10 units.

Find the gradient of  $PQ$ .

Diberi bahawa jarak  $PQ$  ialah 10 unit.

Cari kecerunan  $PQ$ .

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

B  $-\frac{5}{4}$

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

D  $-\frac{5}{3}$

- 33 It is given that the equation of a straight line which passes through point  $(0, 8)$  is  $y = -4x + c$ .

Find the point of intersection of the straight line and the  $x$ -axis.

Diberi bahawa persamaan suatu garis lurus yang melalui titik  $(0, 8)$  ialah  $y = -4x + c$ .

Cari titik persilangan garis lurus itu dengan paksi-x.

A  $(-2, 0)$

B  $(2, 0)$

C  $(-32, 0)$

D  $(32, 0)$

- 34 A basket contains 6 red balls and a number of yellow balls. A ball is chosen at random from the basket. The probability of choosing a yellow ball is  $\frac{2}{3}$ .

Find the number of yellow balls in the basket.

*Sebuah bakul mengandungi 6 biji bola merah dan beberapa biji bola kuning. Sebiji bola dipilih secara rawak daripada bakul itu. Kebarangkalian memilih sebiji bola kuning ialah  $\frac{2}{3}$ .*

*Cari bilangan bola kuning di dalam bakul itu.*

- A 4
- B 9
- C 12
- D 18

[Lihat halaman sebelah  
SULIT]

- 35** Diagram 13 shows a circular board which is divided into 12 equal sectors and labelled with numbers.

*Rajah 13 menunjukkan sekeping papan bulatan yang dibahagi kepada 12 sektor yang sama besar dan dilabel dengan nombor.*

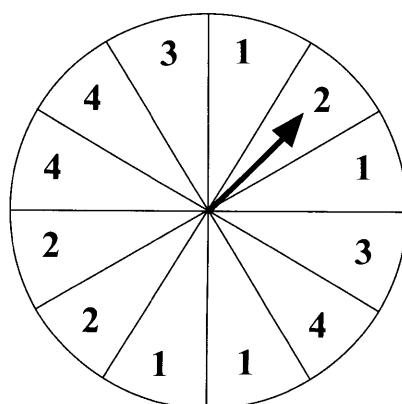


Diagram 13  
Rajah 13

A pointer is placed at the centre of the board. The pointer is rotated about the centre of the board and will equally likely to stop at any sector.

What is the probability that the pointer will **not** stop in the sectors labelled **1**?

*Satu jarum penunjuk diletakkan di pusat papan itu. Jarum penunjuk itu diputarkan pada pusat papan itu dan akan berhenti di mana-mana sektor dengan kemungkinan yang sama.*

*Apakah kebarangkalian bahawa jarum penunjuk itu **tidak** akan berhenti dalam sektor yang berlabel **1**?*

**A**  $\frac{1}{12}$

**B**  $\frac{1}{3}$

**C**  $\frac{2}{3}$

**D**  $\frac{11}{12}$

- 36** Which table represents the relation of  $y \propto x^2$ ?

*Jadual manakah yang mewakili hubungan  $y \propto x^2$ ?*

**A**

|     |   |   |    |    |
|-----|---|---|----|----|
| $x$ | 1 | 2 | 3  | 4  |
| $y$ | 1 | 8 | 27 | 64 |

**B**

|     |   |    |    |     |
|-----|---|----|----|-----|
| $x$ | 1 | 2  | 3  | 4   |
| $y$ | 1 | 16 | 81 | 256 |

**C**

|     |   |   |   |   |
|-----|---|---|---|---|
| $x$ | 1 | 2 | 3 | 4 |
| $y$ | 2 | 4 | 6 | 8 |

**D**

|     |   |   |    |    |
|-----|---|---|----|----|
| $x$ | 1 | 2 | 3  | 4  |
| $y$ | 2 | 8 | 18 | 32 |

- 37** It is given that  $m$  varies inversely with  $n$  and  $m = 20$  when  $n = 2$ . Calculate the value of  $n$  when  $m = 5$ .

*Diberi bahawa  $m$  berubah secara songsang dengan  $n$  dan  $m = 20$  apabila  $n = 2$ . Hitung nilai  $n$  apabila  $m = 5$ .*

**A**  $\frac{1}{8}$

**B**  $\frac{1}{2}$

**C** 2

**D** 8

**38**  $R$  varies directly as the square root of  $S$  and inversely as  $T$ .

Given that the constant is  $k$ , find the relation between  $R$ ,  $S$  and  $T$ .

*R berubah secara langsung dengan punca kuasa dua S dan secara songsang dengan T.*

*Diberi k ialah pemalar, cari hubungan antara R, S dan T.*

**A**  $R = \frac{kS^2}{T}$

**B**  $R = \frac{k\sqrt{S}}{T}$

**C**  $R = \frac{kT}{S^2}$

**D**  $R = \frac{kT}{\sqrt{S}}$

**39**  $\begin{pmatrix} 2 \\ 1 \end{pmatrix} - \begin{pmatrix} 3 \\ -4 \end{pmatrix} + \frac{1}{3} \begin{pmatrix} -6 \\ -3 \end{pmatrix} =$

**A**  $\begin{pmatrix} 3 \\ -6 \end{pmatrix}$

**B**  $\begin{pmatrix} 3 \\ -4 \end{pmatrix}$

**C**  $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$

**D**  $\begin{pmatrix} -3 \\ 4 \end{pmatrix}$

**40**  $(1 \ -1 \ 0) \begin{pmatrix} 5 & 1 \\ -2 & 0 \\ 3 & 4 \end{pmatrix} =$

**A**  $(3 \ 1)$

**B**  $(7 \ 1)$

**C**  $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$

**D**  $\begin{pmatrix} 7 \\ 1 \end{pmatrix}$

**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 baru.*
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. A booklet of four-figure mathematical tables is provided.  
*Sebuah buku sifir matematik empat angka disediakan.*
9. You may use a scientific calculator.  
*Anda dibenarkan menggunakan kalkulator saintifik.*