

SULIT  
1449/1  
Mathematics  
Kertas 1  
2011

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



**MAJLIS PENGETUA SEKOLAH MENENGAH MALAYSIA  
CAWANGAN NEGERI SEMBILAN**

**PEPERIKSAAN PERCUBAAN BERSAMA  
SIJIL PELAJARAN MALAYSIA 2011**

**MATHEMATICS**

Kertas 1

Satu jam lima belas minit

**JANGAN BUKA KERTAS SOALANINI 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 32 halaman bercetak.

**SULIT****2****1449/1**

**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. $a^m \times a^n = a^{m+n}$ .   | 10. Pythagoras Theorem<br><i>Teorem Pithagoras</i><br>$c^2 = a^2 + b^2$  |
| 2. $a^m \div a^n = a^{m-n}$   | 11. $P(A) = \frac{n(A)}{n(S)}$   |
| 3. $(a^m)^n = a^{mn}$   | 12. $P(A') = 1 - P(A)$   |
| 4. $A^{-1} = \frac{1}{ad-bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$  | 13. $m = \frac{y_2 - y_1}{x_2 - x_1}$  |
| 5. Distance / Jarak<br>$= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$   | 14. $m = -\frac{y - \text{intercept}}{x - \text{intercept}}$<br>$m = -\frac{\text{pintasan} - y}{\text{pintasan} - x}$ |
| 6. Midpoint / Titik tengah<br>$(x, y) = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$  |  |
| 7. Average speed = $\frac{\text{distance travelled}}{\text{time taken}}$<br><i>Purata laju = <math>\frac{\text{jarak yang dilalui}}{\text{masa yang diambil}}</math></i>  |  |
| 8. Mean = $\frac{\text{sum of data}}{\text{number of data}}$<br><br>$Min = \frac{\text{hasil tambah nilai data}}{\text{bilangan data}}$   |  |
| 9. Mean = $\frac{\text{sum of (classmark} \times \text{frequency})}{\text{sum of frequencies}}$<br><br>$Min = \frac{\text{hasil tambah (nilai titik tengah kelas} \times \text{kekerapan})}{\text{hasil tambah kekerapan}}$ |  |

**SHAPE AND SPACE  
BENTUK DAN RUANG**

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

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

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

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

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

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

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

$$Isipadu prisma tegak = luas keratan rentas \times panjang$$

7. Volume of cylinder =  $\pi r^2 h$

$$Isipadu silinder = \pi j^2 t$$

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

$$Isipadu kon = \frac{1}{3}\pi j^2 t$$

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

$$Isipadu sfera = \frac{4}{3}\pi j^3$$

10. Volume of right pyramid =  $\frac{1}{3} \times$  base area  $\times$  height

$$Isipadu piramid tegak = \frac{1}{3} \times \text{luas tapak} \times \text{tinggi}$$

11. Sum of interior angles of a polygon

$$\text{Hasil tambah sudut pedalaman poligon}$$

$$= (n - 2) \times 180^\circ$$

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

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

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

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

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

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

15. Area of image =  $k^2 \times$  area of object

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

**SULIT****5****1449/1**

**Answer all questions**  
*Jawab semua soalan*

- 1** Round off  $0.04703$  correct to three significant figures.

*Bundarkan  $0.04703$  betul kepada tiga angka bererti.*

- A** 0.05
- B** 0.050
- C** 0.047
- D** 0.0470

- 2** Express  $5.231 \times 10^2$  as a single number.

*Ungkapkan  $5.231 \times 10^2$  sebagai satu nombor tunggal.*

- A** 0.05231
- B** 0.5231
- C** 52.31
- D** 523.1

- 3**  $2.74 \times 10^{-5} - 3.21 \times 10^{-6} =$

- A**  $2.419 \times 10^{-5}$
- B**  $2.419 \times 10^{-6}$
- C**  $3.036 \times 10^{-5}$
- D**  $3.036 \times 10^{-6}$

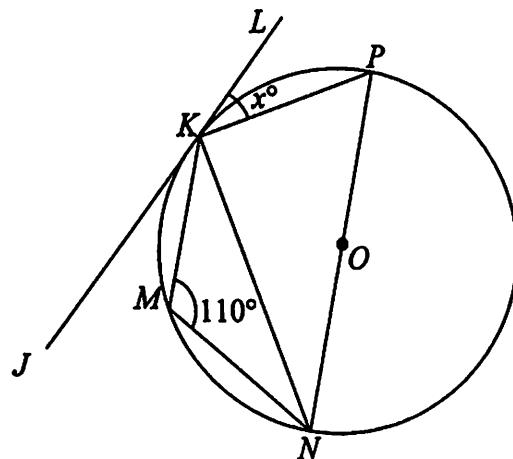
- 4**  $11011_2 - 111_2 =$

- A**  $10000_2$
- B**  $10100_2$
- C**  $11100_2$
- D**  $100010_2$

**SULIT****8****1449/1**

- 8** In Diagram 3,  $JKL$  is a tangent to the circle with centre  $O$ , at  $K$ .

*Dalam Rajah 3,  $JKL$  ialah tangen kepada bulatan berpusat  $O$ , di  $K$ .*



**Diagram 3**

*Rajah 3*

Find the value of  $x$ .

*Cari nilai  $x$ .*

- A** 20
- B** 35
- C** 55
- D** 70

**SULIT****5****1449/1**

**Answer all questions**  
*Jawab semua soalan*

- 1** Round off  $0.04703$  correct to three significant figures.

*Bundarkan  $0.04703$  betul kepada tiga angka bererti.*

- A** 0.05
- B** 0.050
- C** 0.047
- D** 0.0470

- 2** Express  $5.231 \times 10^2$  as a single number.

*Ungkapkan  $5.231 \times 10^2$  sebagai satu nombor tunggal.*

- A** 0.05231
- B** 0.5231
- C** 52.31
- D** 523.1

**3**  $2.74 \times 10^{-5} - 3.21 \times 10^{-6} =$

- A**  $2.419 \times 10^{-5}$
- B**  $2.419 \times 10^{-6}$
- C**  $3.036 \times 10^{-5}$
- D**  $3.036 \times 10^{-6}$

**4**  $11011_2 - 111_2 =$

- A**  $10000_2$
- B**  $10100_2$
- C**  $11100_2$
- D**  $100010_2$

**SULIT****8****1449/1**

- 8 In Diagram 3,  $JKL$  is a tangent to the circle with centre  $O$ , at  $K$ .

Dalam Rajah 3,  $JKL$  ialah tangen kepada bulatan berpusat  $O$ , di  $K$ .

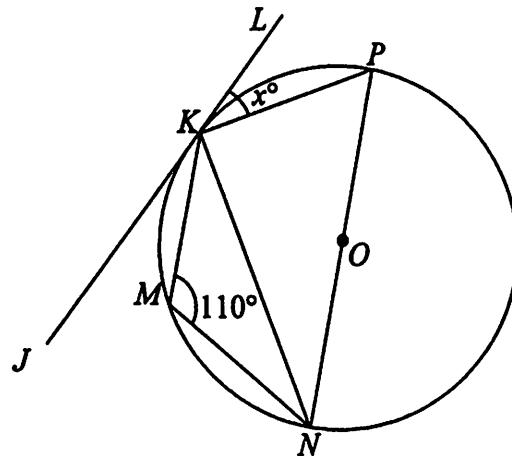


Diagram 3

Rajah 3

Find the value of  $x$ .

Cari nilai  $x$ .

- A 20
- B 35
- C 55
- D 70

**SULIT****7****1449/1**

- 7** In Diagram 2,  $JKLMN$  is a regular pentagon.  $JKR$  and  $JLS$  are straight lines.

Dalam Rajah 2,  $JKLMN$  ialah sebuah pentagon sekata.  $JKR$  dan  $JLS$  adalah garis lurus.

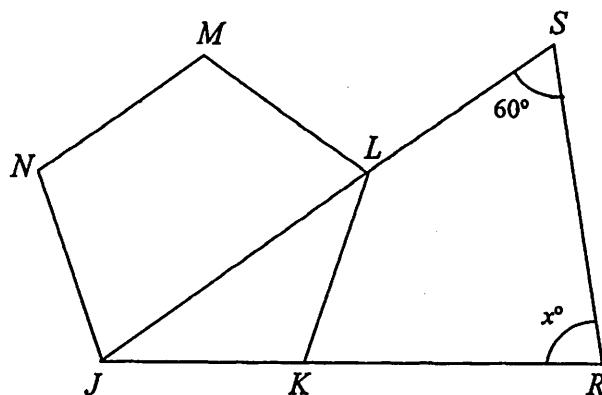


Diagram 2  
Rajah 2

Find the value of  $x$ .

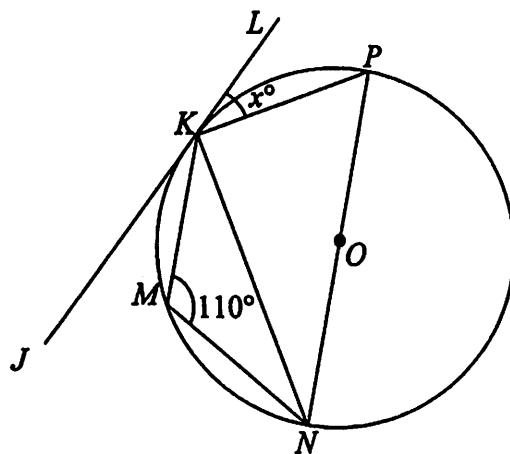
Cari nilai  $x$ .

- A** 48
- B** 72
- C** 84
- D** 96

**SULIT****8****1449/1**

- 8** In Diagram 3,  $JKL$  is a tangent to the circle with centre  $O$ , at  $K$ .

*Dalam Rajah 3,  $JKL$  ialah tangen kepada bulatan berpusat  $O$ , di  $K$ .*



**Diagram 3**

*Rajah 3*

Find the value of  $x$ .

*Cari nilai  $x$ .*

- A** 20
- B** 35
- C** 55
- D** 70

**SULIT****9****1449/1**

- 9 In Diagram 4, triangle  $Q$  is the image of triangle  $P$  under a rotation of  $90^\circ$  clockwise.

Dalam Rajah 4, segi tiga  $Q$  adalah imej bagi segi tiga  $P$  di bawah suatu putaran  $90^\circ$  ikut arah jam.

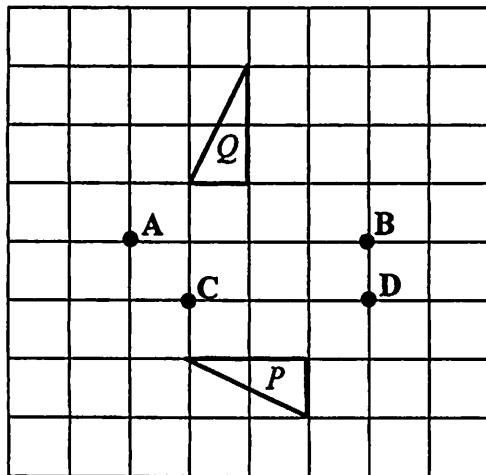


Diagram 4

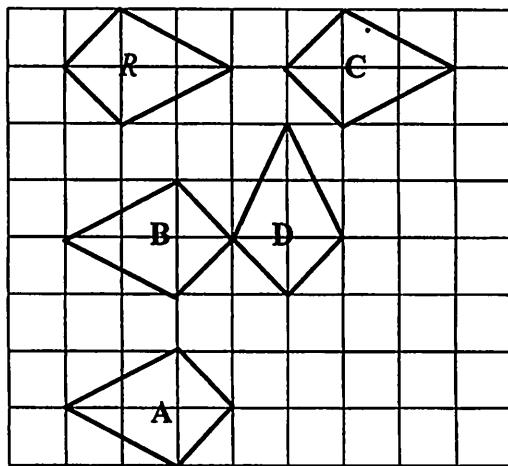
Rajah 4

Which of the points **A**, **B**, **C** or **D** is the centre of the rotation ?

Antara titik **A**, **B**, **C** atau **D** yang manakah pusat putaran itu?

- 10** Diagram 5 shows five quadrilaterals drawn on square grids.

*Rajah 5 menunjukkan lima sisi empat dilukis pada grid segi empat sama.*



**Diagram 5**  
*Rajah 5*

Which of the quadrilaterals A, B, C or D, is an image of R under a reflection in a certain line?

*Antara sisi empat A, B, C atau D, yang manakah imej bagi R di bawah suatu pantulan pada garis tertentu?*

**SULIT****11****1449/1**

**11** In Diagram 6,  $JKL$  is a straight line.

Dalam Rajah 6,  $JKL$  ialah garis lurus.

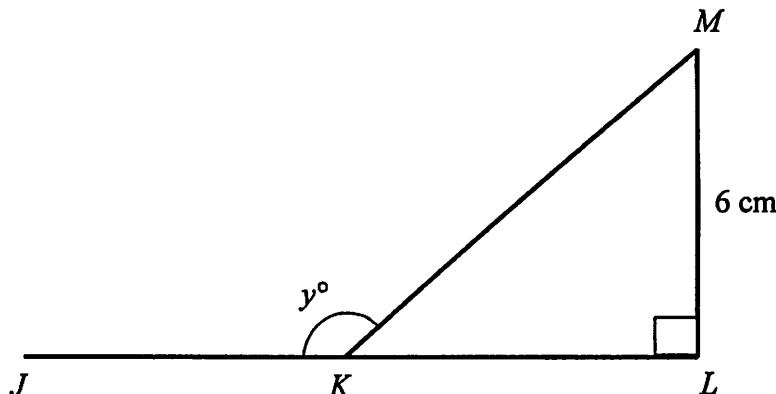


Diagram 6

Rajah 6

Given that  $\cos \angle LMK = \frac{3}{5}$ , find the value of  $\cos y^\circ$ .

Diberi bahawa  $\cos \angle LMK = \frac{3}{5}$ , cari nilai  $\cos y^\circ$ .

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

**SULIT****12****1449/1**

- 12** Diagram 7 shows the graph of  $y = \cos x^\circ$ .  
*Rajah 7 menunjukkan graf  $y = \cos x^\circ$ .*

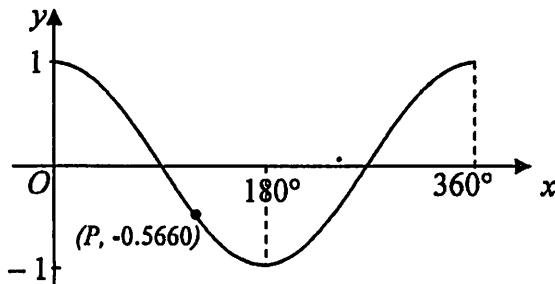


Diagram 7  
*Rajah 7*

Find the value of  $P$ .  
*Cari nilai  $P$ .*

- A**  $34.47^\circ$
- B**  $55.53^\circ$
- C**  $124.47^\circ$
- D**  $145.53^\circ$

- 13** Diagram 8 shows a unit circle.  $O$  is the origin of a Cartesian plane.

*Rajah 8 menunjukkan sebuah bulatan unit.  $O$  ialah asalan pada suatu satah Cartesan.*

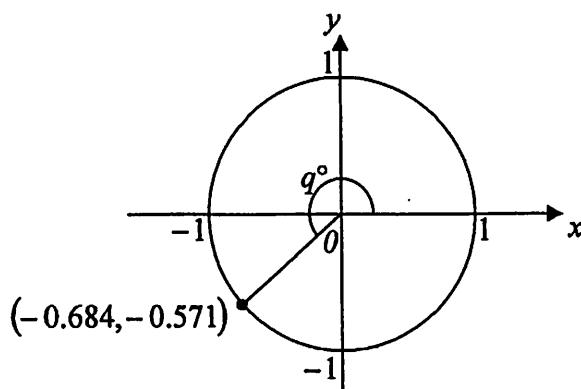


Diagram 8  
*Rajah 8*

Find the value of  $q$ .  
*Cari nilai  $q$ .*

- A** 230.15
- B** 223.15
- C** 219.85
- D** 214.35

**SULIT****13****1449/1**

- 14** Diagram 9 shows a right angled triangular prism with a rectangular base  $JKLM$ .

*Rajah 9 menunjukkan sebuah prisma segitiga tegak dengan tapak segi empat tepat  $JKLM$ .*

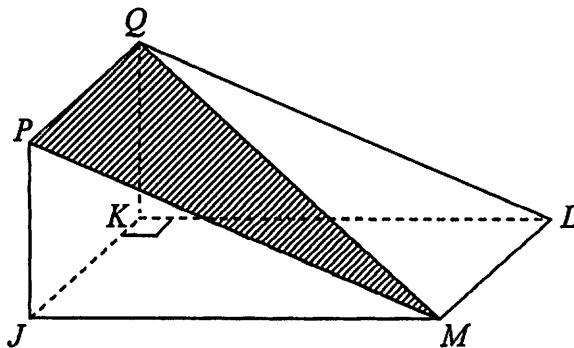


Diagram 9

*Rajah 9*

Name the angle between the plane  $PQM$  and the plane  $JKQ$ .

*Namakan sudut di antara satah  $PQM$  dan satah  $JKQ$ .*

- A**     $\angle MQK$
- B**     $\angle MPJ$
- C**     $\angle PMJ$
- D**     $\angle QML$

**SULIT****14****1449/1**

- 15** In Diagram 10,  $P$  and  $Q$  are two points on the horizontal plane and  $R$  is the top of a vertical flagpole  $PR$ .

*Dalam Rajah 10,  $P$  dan  $Q$  ialah dua titik pada satah mengufuk dan  $R$  ialah puncak sebatang tiang bendera tegak  $PR$ .*

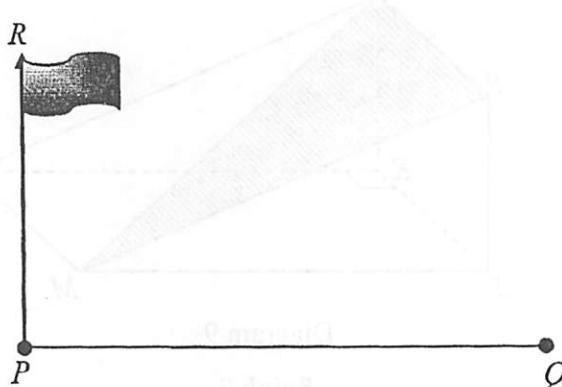


Diagram 10

Rajah 10

The angle of elevation of  $R$  from  $Q$  is  $42^\circ$ . The distance between  $P$  and  $Q$  is 16 m. Calculate the height, in m, of the flagpole  $PR$ .

*Sudut dongakan  $R$  dari  $Q$  ialah  $42^\circ$ . Jarak di antara  $P$  dan  $Q$  ialah 16 m.  
Hitungkan tinggi, dalam m, tiang bendera  $PR$  itu.*

- A** 10.71
- B** 11.89
- C** 14.41
- D** 17.77

**SULIT****15****1449/1**

- 16** Diagram 11 shows two vertical tower  $KL$  and  $JM$  on a horizontal plane.

*Rajah 11 menunjukkan dua buah menara  $KL$  dan  $JM$  di atas satah mengufuk.*

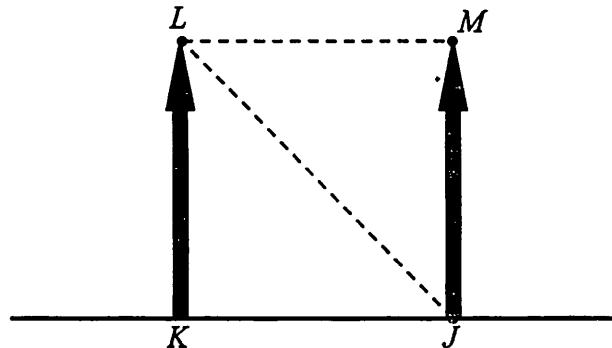


Diagram 11

*Rajah 11*

The angle of depression of point  $J$  from point  $L$  is

*Sudut tunduk titik  $J$  dari titik  $L$  ialah*

- A  $\angle MLJ$
- B  $\angle LJK$
- C  $\angle JKL$
- D  $\angle JLK$

**SULIT****16****1449/1**

- 17 Diagram 12 shows two points of  $P$  and  $Q$  on a horizontal plane.

Rajah 12 menunjukkan dua titik  $P$  dan  $Q$  pada satah mengufuk.

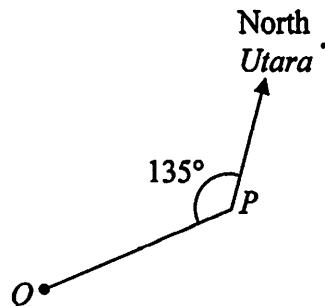


Diagram 12  
Rajah 12

Find the bearing of  $P$  from  $Q$ .

Cari bearing  $P$  dari  $Q$ .

- A  $315^\circ$
- B  $225^\circ$
- C  $135^\circ$
- D  $045^\circ$

**SULIT****17****1449/1**

- 18** In Diagram 13,  $N$  is the North Pole and  $S$  is the South Pole.  $PM=MS$ .

*Dalam Rajah 13, U ialah Kutub Utara dan S ialah Kutub Selatan.  $PM=MS$ .*

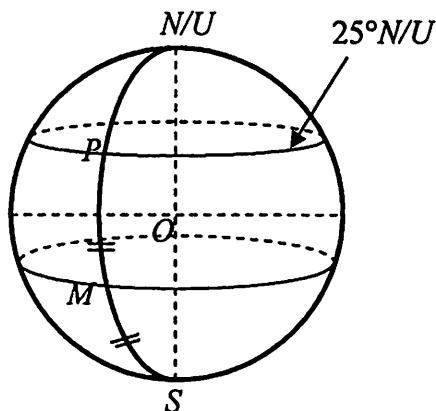


Diagram 13

Rajah 13

Find the latitude of  $M$ .

*Cari latitud M.*

- A**  $25^{\circ}S$
- B**  $32.5^{\circ}S$
- C**  $45^{\circ}S$
- D**  $57.5^{\circ}S$

- 19**  $3p(p+1)-(p-2)^2 =$

**SULIT****18****1449/1**

**19**      $3p(p+1) - (p-2)^2 =$

- A      $2p^2 - p + 4$
- B      $2p^2 - p - 4$
- C      $2p^2 + 3p + 4$
- D      $2p^2 + 7p - 4$

**20**     Express  $\frac{m}{3} - \frac{2(m^2 - 2)}{12m}$  as a single fraction in its simplest form.

*Ungkapkan  $\frac{m}{3} - \frac{2(m^2 - 2)}{12m}$  sebagai satu pecahan tunggal dalam bentuk termudah.*

- A      $\frac{m^2 + 2}{6m}$
  - B      $\frac{m^2 - 2}{6m}$
  - C      $\frac{m^2 + 2}{12m}$
  - D      $\frac{m^2 - 2}{12m}$
- 21**     Given that  $p = \frac{1}{p} + \frac{p}{q}$ , express  $q$  in terms of  $p$ .

*Diberi bahawa  $p = \frac{1}{p} + \frac{p}{q}$ , ungkapkan  $q$  dalam sebutan  $p$ .*

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

**SULIT****19****1449/1**

- 22** Given that  $m + \frac{2}{3}(12m + 18) = -3$ , calculate the value of  $m$ .

*Diberi bahawa  $m + \frac{2}{3}(12m + 18) = -3$ , hitungkan nilai  $m$ .*

- A**  $-\frac{27}{25}$
- B**  $-\frac{9}{5}$
- C**  $-\frac{5}{3}$
- D**  $-\frac{7}{3}$

- 23** Given that  $3^{2y} = \frac{27}{3^y}$ , find the value of  $y$ .

*Diberi bahawa  $3^{2y} = \frac{27}{3^y}$ , cari nilai  $y$ .*

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

**SULIT****20****1449/1**

- 24** Simplify :

*Ringkaskan:*

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

- A  $m^{-1}n^2$
- B  $m^{-1}n^{10}$
- C  $mn^{10}$
- D  $m^2n$

- 25** List all the integers  $x$  which satisfy both the simultaneous linear inequalities

$$\frac{3}{5}x - 2 \geq 1 \text{ and } 15 - x > 2.$$

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

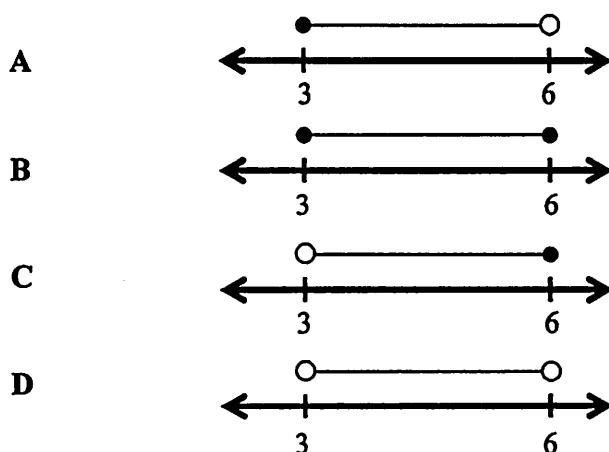
*serentak  $\frac{3}{5}x - 2 \geq 1$  dan  $15 - x > 2$ .*

- A 5, 6, 7, 8, 9, 10
- B 6, 7, 8, 9, 10
- C 5, 6, 7, 8, 9, 10, 11, 12
- D 6, 7, 8, 9, 10, 11, 12

- 26** Which number lines represents the solution of the linear inequalities

$$4 < 3x - 5 \leq 13?$$

*Garis nombor manakah yang mewakili penyelesaian bagi ketaksamaan linear serentak  $4 < 3x - 5 \leq 13$ ?*



**SULIT****21****1449/1**

- 27** A bar chart in Diagram 14 shows a number of students attended the leadership course representing by four schools  $P$ ,  $Q$ ,  $R$  and  $S$ .

*Carta palang dalam Rajah 14 menunjukkan bilangan murid yang menghadiri suatu kursus kepimpinan yang diwakili oleh empat buah sekolah  $P$ ,  $Q$ ,  $R$  dan  $S$ .*

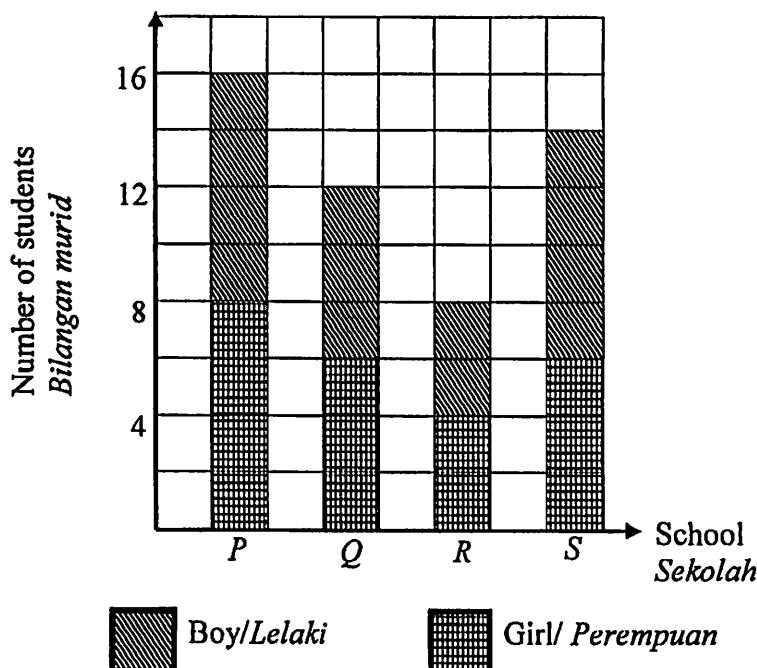


Diagram 14

Rajah 14

Calculate the different between number of boys and girls who attended the leadership course.

*Hitungkan beza antara bilangan murid lelaki dengan murid perempuan yang menghadiri kursus kepimpinan itu.*

- A    4
- B    3
- C    2
- D    1

- 28** The pie chart in Diagram 15 shows the favourite games of a group of students.

*Carta pai dalam Rajah 15 menunjukkan permainan yang diminati oleh sekumpulan murid.*

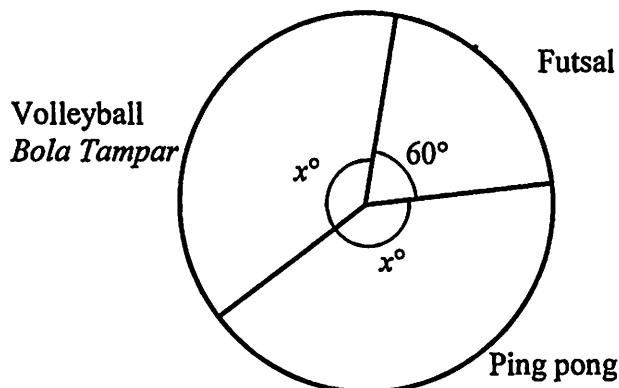


Diagram 15  
*Rajah 15*

If the total number of students in the group is 108. How many students who decided the volleyball as their favourite game?

*Jika jumlah bilangan murid dalam kumpulan itu ialah 108 orang. Berapakah bilangan murid yang memilih bola tampar sebagai permainan yang diminati?*

- A** 18
- B** 45
- C** 90
- D** 150

**SULIT****23****1449/1**

- 29** Table 1 is a frequency table showing the marks obtained by a group of student in a Mathematics test.

*Jadual 1 ialah jadual kekerapan yang menunjukkan markah diperolehi oleh sekumpulan murid dalam satu ujian Matematik.*

Marks/ Markah	Frequency /Kekerapan
80-100	6
70-79	9
60-69	10
50-59	6
<50	5

Table 1  
*Jadual 1*

Calculate the number of students that gets mark below than the modal class.

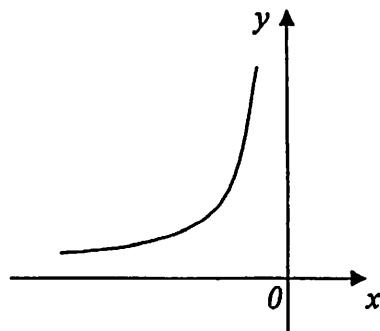
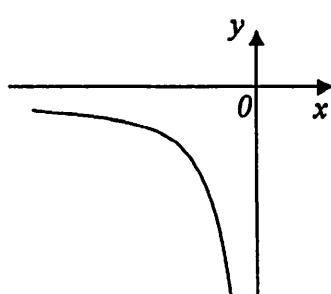
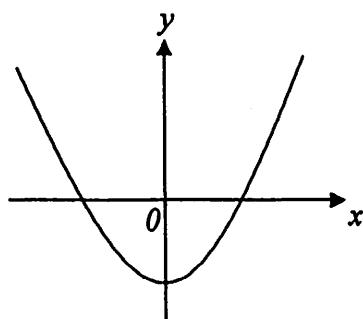
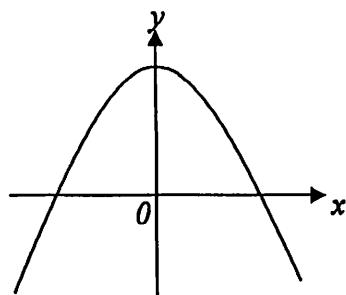
*Hitung bilangan murid mendapat markah yang lebih rendah daripada kelas mod.*

- A** 6
- B** 10
- C** 15
- D** 21

**SULIT****24****1449/1**

- 30** Which graph represents part of the graph  $y = -\frac{5}{x}$ ?

Graf manakah yang mewakili sebahagian daripada graf  $y = -\frac{5}{x}$ ?

**A****B****C****D**

**SULIT****25****1449/1**

- 31** Given the universal set  $\xi = \{ x : 20 < x \leq 34, x \text{ is an integer} \}$ , and set  $P = \{ x : x \text{ is a number such that the sum of its two digits is an odd number} \}$ . Find set  $P'$ .

*Diberi set semesta  $\xi = \{ x : 20 < x \leq 34, x \text{ ialah integer} \}$  dan set  $P = \{ x : x \text{ ialah nombor dengan keadaan hasil tambah dua digitnya ialah nombor ganjil} \}$ . Cari set  $P'$ .*

- A { 22, 24, 26, 28, 31, 33 }
- B { 22, 24, 26, 30, 32, 34 }
- C { 23, 25, 27, 29, 31, 32, 34 }
- D { 23, 25, 27, 29, 30, 31, 32, 34 }

- 32** Diagram 16 is a Venn diagram showing the universal set  $\xi = \{ \text{Form Five students} \}$ , set  $M = \{ \text{Students who passed Mathematics test} \}$  and set  $S = \{ \text{Students who passed Science test} \}$ .

*Rajah 16 ialah gambar rajah Venn yang menunjukkan set semesta,  $\xi = \{ \text{Murid Tingkatan Lima} \}$ , set  $M = \{ \text{Murid yang lulus ujian Matematik} \}$  dan set  $S = \{ \text{Murid yang lulus ujian Sains} \}$ .*

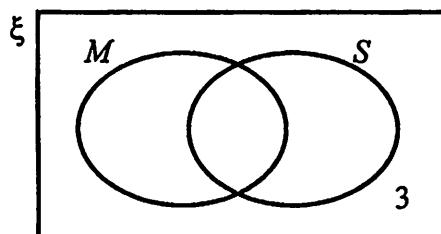


Diagram 16  
Rajah 16

Given  $n(\xi) = 100$ ,  $n(M) = 45$  and  $n(S) = 72$ . Find the number of students who passed both of Mathematics and Science test.

*Diberi  $n(\xi) = 100$ ,  $n(M) = 45$  dan  $n(S) = 72$ . Cari bilangan murid yang lulus kedua-dua ujian Matematik dan Sains.*

- A 14
- B 17
- C 20
- D 27

**SULIT****26****1449/1**

- 33** In Diagram 17, gradient of straight line  $PQ = \frac{4}{5}$ .

Dalam Rajah 17, kecerunan garis lurus  $PQ = \frac{4}{5}$ .

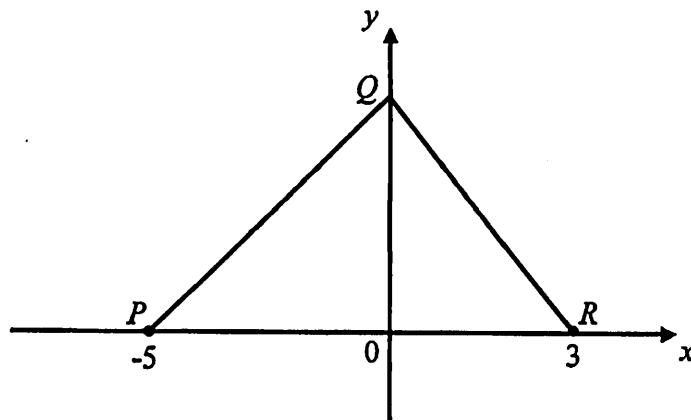


Diagram 17

Rajah 17

Find the gradient of straight line  $QR$ .

Cari kecerunan bagi garis lurus  $QR$ .

- A**  $\frac{3}{4}$
- B**  $-\frac{3}{4}$
- C**  $\frac{4}{3}$
- D**  $-\frac{4}{3}$

**SULIT****27****1449/1**

- 34 Diagram 18 shows the straight line  $PQ$  is parallel to the straight line  $RS$ .

Rajah 18 menunjukkan garis lurus  $PQ$  adalah selari dengan garis lurus  $RS$ .

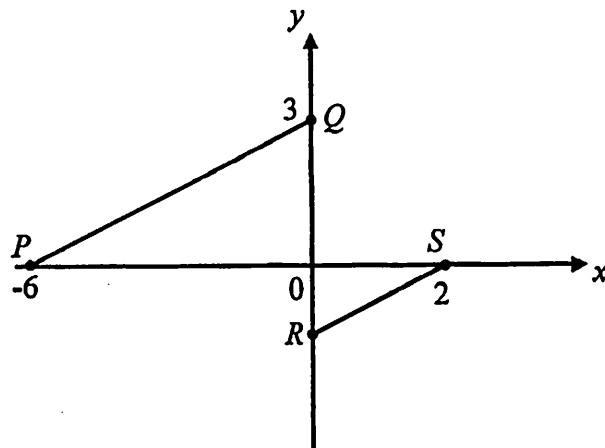


Diagram 18

Rajah 18

Find the  $y$ -intercept of  $RS$ .

Cari pintasan- $y$  bagi  $RS$ .

- A -2
- B -1
- C 1
- D 2

**SULIT****28****1449/1**

- 35** Table 2 shows the number of marbles in a box.

*Jadual 2 menunjukkan bilangan guli dalam sebuah kotak.*

Colour <i>Warna</i>	Number of marbles <i>Bilangan guli</i>
Yellow <i>Kuning</i>	24
Red <i>Merah</i>	31
Blue <i>Biru</i>	$x$

**Table 2**  
*Jadual 2*

A marble is picked at random from the box. The probability that a yellow marble is chosen is  $\frac{3}{10}$ . Find the value of  $x$ .

*Sebiji guli dipilih secara rawak daripada kotak itu. Kebarangkalian memilih guli kuning ialah  $\frac{3}{10}$ . Cari nilai  $x$  itu.*

- A** 24
- B** 25
- C** 26
- D** 28

**SULIT****29****1449/1**

- 36 In a class, there were eight students who wear spectacles.  
If a student was chosen at random from the class, the probability that the student  
was wearing spectacles was  $\frac{1}{5}$ .  
Six new students joined the class.  
If a student is chosen from the class, state the probability that the student who  
wears spectacles.

*Dalam sebuah kelas, terdapat lapan orang murid memakai cermin mata.  
Jika murid dipilih secara rawak daripada kelas itu, kebarangkalian murid  
memakai cermin mata ialah  $\frac{1}{5}$ .*

*Enam orang murid baru menyertai kelas itu.  
Jika seorang murid dipilih secara rawak daripada kelas itu, nyatakan  
kebarangkalian murid yang memakai cermin mata.*

- A  $\frac{3}{23}$   
B  $\frac{3}{20}$   
C  $\frac{7}{23}$   
D  $\frac{7}{20}$

**SULIT****30****1449/1**

- 37** It is given that  $y$  varies directly as the cube root of  $x$ .  
Find the relationship between  $y$  and  $x$ .

*Diberi bahawa  $y$  berubah secara langsung dengan punca kuasa tiga  $x$ .  
Cari hubungan antara  $y$  dan  $x$ .*

- A  $y \propto x^{\frac{1}{3}}$
- B  $y \propto x^3$
- C  $y \propto \frac{1}{x^{\frac{1}{3}}}$
- D  $y \propto \frac{1}{x^3}$

- 38** Table 3 shows the values of  $m, n$  and  $p$ . Given that  $m \propto \frac{\sqrt{n}}{p^2}$ .

*Jadual 3 menunjukkan nilai-nilai  $m, n$  dan  $p$ . Diberi bahawa  $m \propto \frac{\sqrt{n}}{p^2}$ .*

$m$	$n$	$p$
18	9	2
4	$q$	3

Table 3

*Jadual 3*

Find the value of  $q$ .

*Cari nilai  $q$ .*

- A  $\frac{1}{4}$
- B  $\frac{2}{3}$
- C  $\frac{3}{2}$
- D  $\frac{9}{4}$

**SULIT****31****1449/1**

**39**  $\begin{pmatrix} 6 & 1 \\ 4 & 2 \end{pmatrix} - 3 \begin{pmatrix} -2 & 4 \\ 2 & 0 \end{pmatrix} + \begin{pmatrix} 1 & 5 \\ -4 & 3 \end{pmatrix} =$

**A**  $\begin{pmatrix} 13 & -6 \\ 6 & 5 \end{pmatrix}$

**B**  $\begin{pmatrix} 13 & -6 \\ -6 & 5 \end{pmatrix}$

**C**  $\begin{pmatrix} 13 & 6 \\ 6 & 5 \end{pmatrix}$

**D**  $\begin{pmatrix} 13 & 6 \\ -6 & 5 \end{pmatrix}$

**40** Given that  $\begin{pmatrix} 1 & 3 \\ 0 & h \end{pmatrix} \begin{pmatrix} h \\ 3 \end{pmatrix} = \begin{pmatrix} 6 \\ -9 \end{pmatrix}$ , calculate the value of  $h$ .

*Diberi bahawa*  $\begin{pmatrix} 1 & 3 \\ 0 & h \end{pmatrix} \begin{pmatrix} h \\ 3 \end{pmatrix} = \begin{pmatrix} 6 \\ -9 \end{pmatrix}$ , *hitung nilai*  $h$ .

**A** 6

**B** 3

**C** 0

**D** -3

**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 answer sheet.  
*Jawab dengan menghitamkan ruangan yang betul pada kertas jawapan.*
4. Blacken only one space for each question.  
*Bagi setiap soalan hitamkan satu ruangan sahaja.*
5. If you wish to change your answer, erase the blackened mark that you have made. 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 dilukiskan 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 can be used.  
*Buku sifir matematik empat angka boleh digunakan.*
9. You may use a non-programmable scientific calculator.  
*Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.*