

SULIT
1449/1
MATEMATIK
Kertas 1
Ogos
2011
 $1\frac{1}{4}$ jam

1449/1



BAHAGIAN PENGURUSAN
SEKOLAH BERASRAMA PENUH DAN SEKOLAH KECEMERLANGAN
KEMENTERIAN PELAJARAN MALAYSIA

PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA
TINGKATAN 5 2011

MATEMATIK

Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

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

<http://cikguadura.wordpress.com/>

Kertas soalan ini mengandungi 30 halaman bercetak.

MATHEMATICAL FORMULAE
RUMUS MATEMATIK

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

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

RELATIONS
PERKAITAN

- | | | | |
|---|---|----|---|
| 1 | $a^m \times a^n = a^{m+n}$ | 10 | $P(A) = \frac{n(A)}{n(S)}$ |
| 2 | $a^m \div a^n = a^{m-n}$ | 11 | $P(A') = 1 - P(A)$ |
| 3 | $(a^m)^n = a^{mn}$ | | |
| 4 | $A^{-1} = \frac{1}{ad-bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$ | 12 | $m = \frac{y_2 - y_1}{x_2 - x_1}$ |
| 5 | Distance / <i>Jarak</i> = $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$ | 13 | $m = -\frac{y - \text{intercept}}{x - \text{intercept}}$ |
| 6 | Midpoint/ <i>Titik tengah</i> $(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$ | | $m = -\frac{\text{pintasan} - y}{\text{pintasan} - x}$ |
| 7 | Average speed = $\frac{\text{distance travelled}}{\text{time taken}}$

<i>Purata laju = $\frac{\text{jarak yang dilalui}}{\text{masa yang diambil}}$</i> | 14 | Pythagoras Theorem
<i>Teorem Pithagoras</i>
$c^2 = a^2 + b^2$ |
| 8 | Mean = $\frac{\text{sum of data}}{\text{number of data}}$

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

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

SHAPES AND SPACE
BENTUK DAN RUANG

- 1 Area of trapezium = $\frac{1}{2} \times \text{sum of parallel sides} \times \text{height}$
Luas trapezium = $\frac{1}{2} \times \text{hasil tambah dua sisi selari} \times \text{tinggi}$
- 2 Circumference of circle = $\pi d = 2\pi r$
Lilitan bulatan = $\pi d = 2\pi j$
- 3 Area of circle = πr^2
Luas bulatan = πj^2
- 4 Curved surface area of cylinder = $2\pi r h$
Luas permukaan melengkung silinder = $2\pi j t$
- 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 = $\frac{1}{3} \times \text{base area} \times \text{height}$
Isipadu piramid tegak = $\frac{1}{3} \times \text{luas tapak} \times \text{tinggi}$

- 11 Sum of interior angles of a polygon = $(n - 2) \times 180^\circ$
Hasil tambah sudut pedalaman poligon = $(n - 2) \times 180^\circ$
- 12
$$\frac{\text{arc length}}{\text{circumference of circle}} = \frac{\text{angle subtended at centre}}{360^\circ}$$
$$\frac{\text{panjang lengkok}}{\text{lilitan bulatan}} = \frac{\text{sudut di pusat}}{360^\circ}$$
- 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 , $k = \frac{PA'}{PA}$
Faktor skala , $k = \frac{PA'}{PA}$
- 15 Area of image = $k^2 \times$ area of object
Luas imej = $k^2 \times$ luas objek

- 1 Round off 6 346.2 correct to three significant figures.

Bundarkan 6 346.2 betul kepada tiga angka bererti.

- A 6 350.0
- B 6 350
- C 6340
- D 635

- 2 $3.14 \times 10^{-5} - 1.3 \times 10^{-6} =$

- A 1.84×10^{-5}
- B 1.84×10^{-6}
- C 3.01×10^{-5}
- D 3.01×10^{-6}

- 3 $\frac{4.88 \times 10^9}{0.0004} =$

- A 1.22×10^{13}
- B 1.22×10^{-13}
- C 1.22×10^5
- D 1.22×10^{-5}

- 4 A container consist of 50 boxes of goods. If each box can hold 3.7×10^5 kg of goods, find the total weight of the container.

Sebuah kontena mengandungi 50 kotak barang. Jika berat sebuah kotak ialah 3.7×10^5 kg, cari jumlah berat kontena tersebut.

- A 1.85×10^5
- B 1.85×10^7
- C 1.85×10^8
- D 1.85×10^{20}

- 5 Express 334_5 as a number in base ten.

Ungkapkan 334_5 sebagai nombor dalam asas sepuluh.

- A 90
 B 94
 C 450
 D 470
- 6 $110011_2 + 1111_2$
 A 100000_2
 B 100010_2
 C 1000000_2
 D 1000010_2

- 7 Diagram 7 shows a hexagon $PQRSTU$.

Rajah 7 menunjukkan heksagon $PQRSTU$.

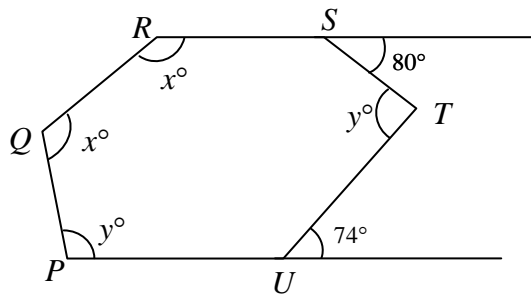


Diagram 7
Rajah 7

Find the value of $x + y$

Cari nilai $x + y$

- A 132°
 B 257°
 C 334°
 D 514°

8 In Diagram 8, JKL is an isosceles triangle.

Dalam Rajah 8, JKL ialah segi tiga sama kaki.

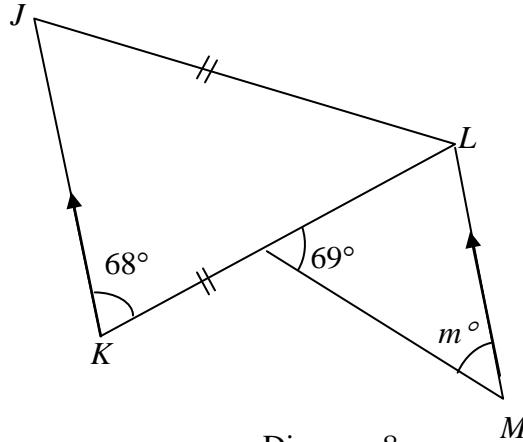


Diagram 8
Rajah 8

The value of m is

Nilai m ialah

- A 41°
- B 43°
- C 53°
- D 55°

- 9 Diagram 9 shows a circle, QST , centre O . PQR is a tangent to the circle at Q .
Rajah 9 menunjukkan sebuah bulatan, QST , berpusat O . PQR adalah tangen kepada bulatan tersebut di titik Q .

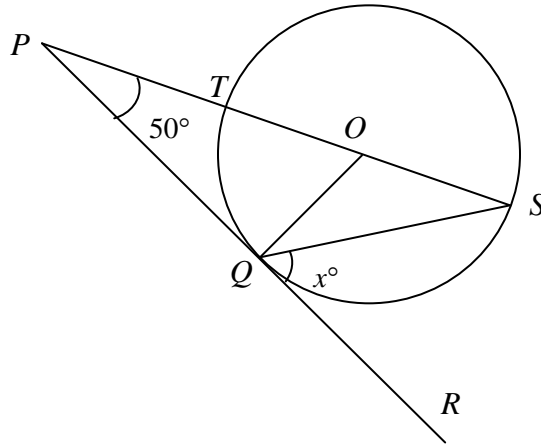


Diagram 9
Rajah 9

The value of x is

Nilai x ialah

- A 20°
- B 40°
- C 50°
- D 70°

10 Diagram 10 shows two triangles, P and Q , drawn on square grids.

Rajah 10 menunjukkan dua buah segi tiga P dan Q , dilukis pada grid segi empat sama.

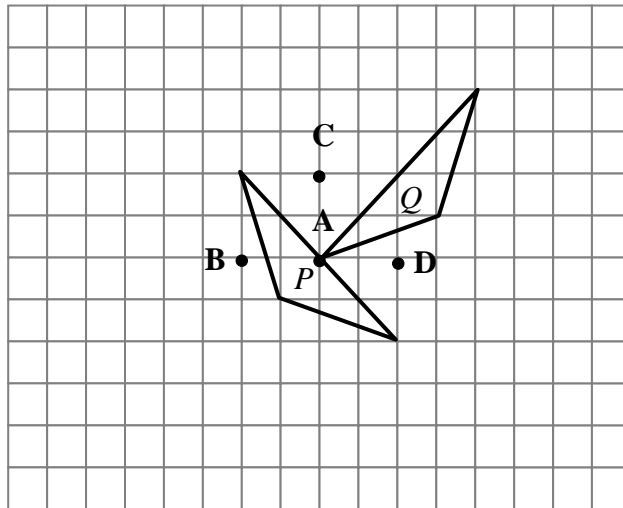


Diagram 10

Rajah 10

Q is the image of P under an anticlockwise rotation of 90° .

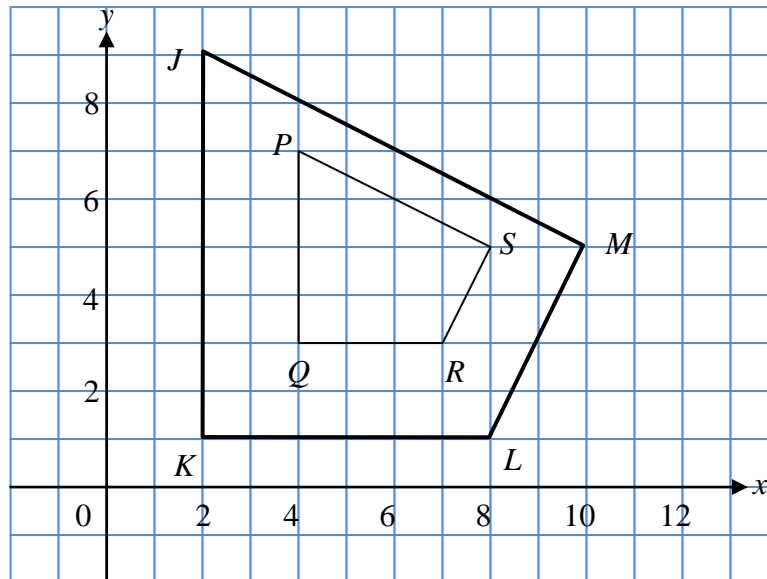
Which of the points, **A**, **B**, **C** or **D**, is the centre of the rotation?

Q ialah imej bagi P di bawah satu putaran 90° lawan arah jam.

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

- 11 In Diagram 11, quadrilateral $PQRS$ is the image of quadrilateral $JKLM$ under an enlargement.

Dalam Rajah 11, sisi empat PQRS ialah imej bagi sisi empat JKLM di bawah satu pembesaran tertentu.



The centre of the enlargement is

Pusat pembesaran ialah

- A (7, 5)
- B (6, 4)
- C (6, 5)
- D (7, 4)

12 In Diagram 12, EFG is a straight line.

Dalam Rajah 12, EFG ialah satu garis lurus.

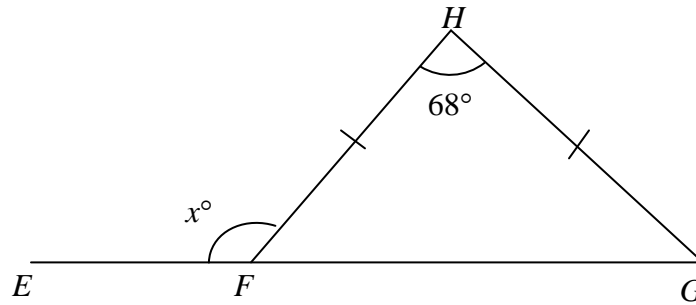


Diagram 12
Rajah 12

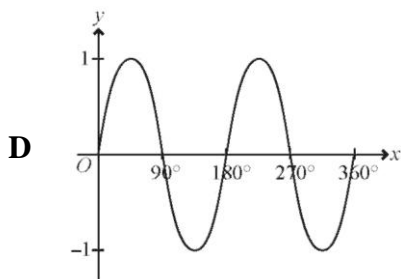
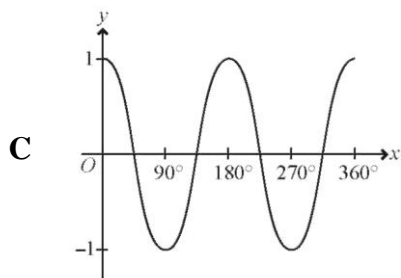
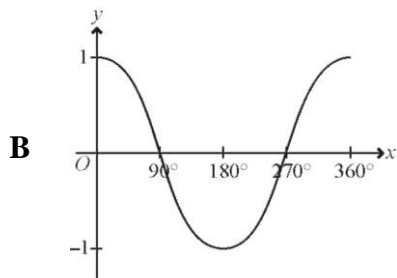
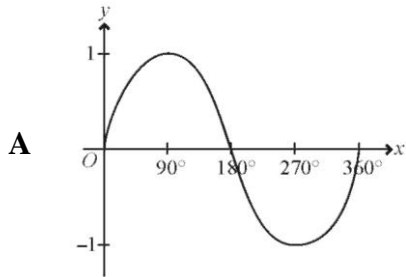
Given that $\angle FHG = 68^\circ$, find the value of $\tan x^\circ$.

Diberi $\angle FHG = 68^\circ$, cari nilai bagi $\tan x^\circ$.

- A -2.475
- B -1.483
- C 1.483
- D 2.475

13 Which of the following graphs represents $y = \cos 2x^\circ$ for $0^\circ \leq x \leq 360^\circ$?

Antara graf yang berikut, manakah mewakili $y = \cos 2x^\circ$ untuk $0 \leq x \leq 360^\circ$?



14 Diagram 14 shows a cuboid with a horizontal base $JKLM$.

Rajah 14 menunjukkan sebuah kuboid dengan tapak mengufuk $JKLM$.

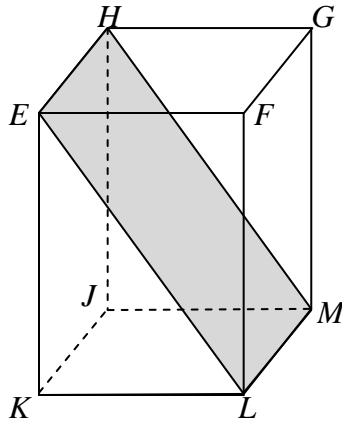


Diagram 14
Rajah 14

Name the angle between the planes $ELMH$ and $EHJK$.

Namakan sudut di antara satah $ELMH$ dengan satah $EHJK$

- A $\angle JHM$
- B $\angle FEL$
- C $\angle HLJ$
- D $\angle ELK$

15 In Diagram 15, EF is a vertical pillar on a horizontal plane.

Dalam Rajah 15, EF ialah satu tiang tegak pada satu satah mengufuk.

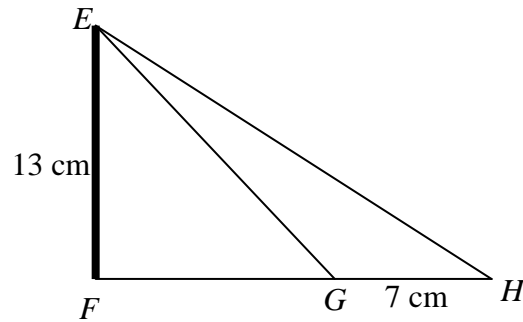


Diagram 15
Rajah 15

The angle of elevation E from H is 40° .
Calculate the angle of depression of G from E .

*Sudut dongakan E dari H ialah 40° .
Hitungkan sudut tunduk G dari E .*

- A $16^\circ 44'$
- B $33^\circ 9'$
- C $56^\circ 51'$
- D $73^\circ 16'$

- 16 In Diagram 16, JL and NM are two vertical poles on a horizontal plane. K is a point on JL such that $KL = NM$.

Dalam Rajah 16, JL dan NM ialah tiang tegak pada satu satah mangufuk. K ialah satu titik pada JL dengan keadaan $KL = NM$.

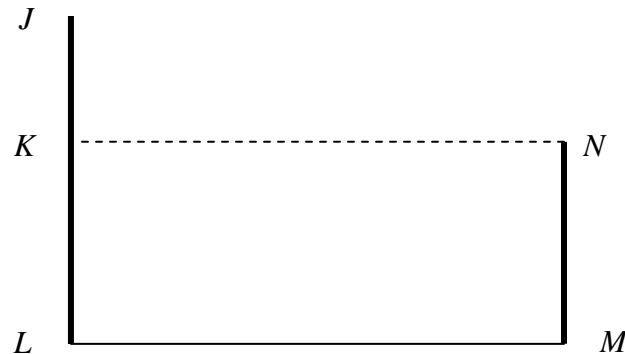


Diagram 16
Rajah 16

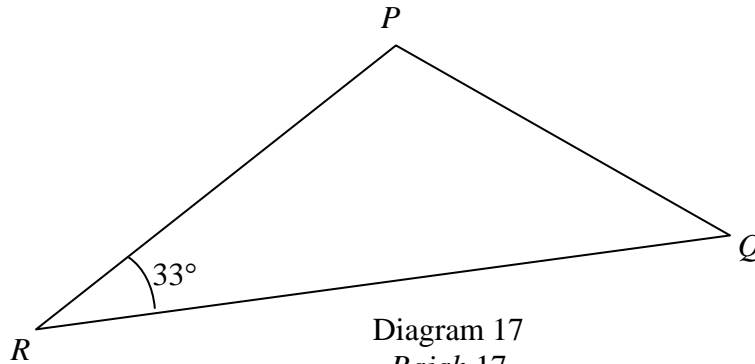
The angle of depression of N from J is

Sudut tunduk N dari J ialah

- A $\angle JNK$
- B $\angle JMK$
- C $\angle NJK$
- D $\angle MJK$

- 17 Diagram 17 shows three points, P , Q and R , on horizontal plane. Q is due east of P .

Rajah 17 menunjukkan tiga titik P , Q dan R , yang terlentang pada suatu satah mengufuk. Q berada di timur P .



Given bearing R from Q is 230° .
Find the bearing R from P .

*Diberi bearing R dari Q ialah 230° .
Cari bearing R dari P .*

- A 017°
- B 107°
- C 197°
- D 214°

- 18 In Diagram 18, NGS is the Greenwich Meridian and PQ is the diameter of a parallel latitude.

Dalam Rajah 18, NGS ialah Meridian Greenwich dan PQ ialah diameter selarian latitude.

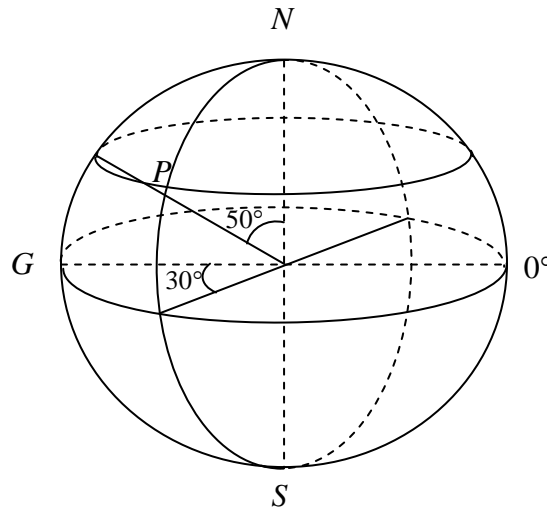


Diagram 18

Rajah 18

Find the position of point Q .

Cari kedudukan titik Q .

- (50°N, 150° W)
A (50°U, 150° B)
 (40°N, 150° E)
B (40°U, 150° T)
 (50°N, 150° E)
C (50°U, 150° T)
 (40°N, 150° W)
D (40°U, 150° B)

- 19 $3p^2 - 19p + 6 =$
- A $(3p - 1)(p - 6)$
 - B $(3p - 6)(p + 1)$
 - C $(3p - 6)(p - 1)$
 - D $(3p + 1)(p - 6)$

- 20 Express $\frac{2}{a-1} - \frac{2}{3a}$ as a single fraction in its simplest form.

Ungkapkan $\frac{2}{a-1} - \frac{2}{3a}$ sebagai satu pecahan tunggal dalam bentuk termudah.

- A $\frac{4a+1}{3a(a-1)}$
 - B $\frac{4a-1}{3a(a-1)}$
 - C $\frac{2(2a+1)}{3a(a-1)}$
 - D $\frac{2}{3a}$
- 21 Given that $k = \frac{2l}{3l+1}$, express l in terms of k .

Diberi bahawa $k = \frac{2l}{3l+1}$, ungkapkan l dalam sebutan k .

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

22 $(2k - 3)^2 + 4k(k - 4) =$

A $8k^2 - 28k + 9$

B $8k^2 - 20k + 9$

C $8k^2 - 16k - 7$

D $8k^2 - 12k - 7$

23 Simplify $\frac{(g^3h^5)^2}{h^{10}}$

Ringkaskan $\frac{(g^3h^5)^2}{h^{10}}$

A g^5h^{10}

B g^5h^{-3}

C g^6h

D g^6

24 Evaluate $(3^4 \times 5^{10})^{\frac{1}{5}} \div (9^2 \times 125^{-4})$

Nilaikan $(3^4 \times 5^{10})^{\frac{1}{5}} \div (9^2 \times 125^{-4})$.

A $(\sqrt[5]{3})^{16} \times 5^{14}$

B $\frac{1}{(\sqrt[5]{3})^{16}} \times 5^{14}$

C $\frac{1}{(\sqrt[16]{3})^5} \times 5^{14}$

D $(\sqrt[16]{3})^5 \times 5^{14}$

25 The solution for $x \leq 2x - \frac{1}{4}$ is

Penyelesaian bagi $x \leq 2x - \frac{1}{4}$ ialah

A $x \geq \frac{1}{4}$

B $x \leq \frac{1}{4}$

C $x \leq \frac{1}{2}$

D $x \geq \frac{1}{2}$

26 List all the integers values of x that satisfy both simultaneous linear inequalities
 $4x - 5 < 7$ and $5 - x \leq 6$

*Senaraikan semua nilai integer bagi x yang memenuhi kedua-dua ketaksamaan linear
 $4x - 5 < 7$ dan $5 - x \leq 6$*

A $-1, 0, 1, 2, 3$

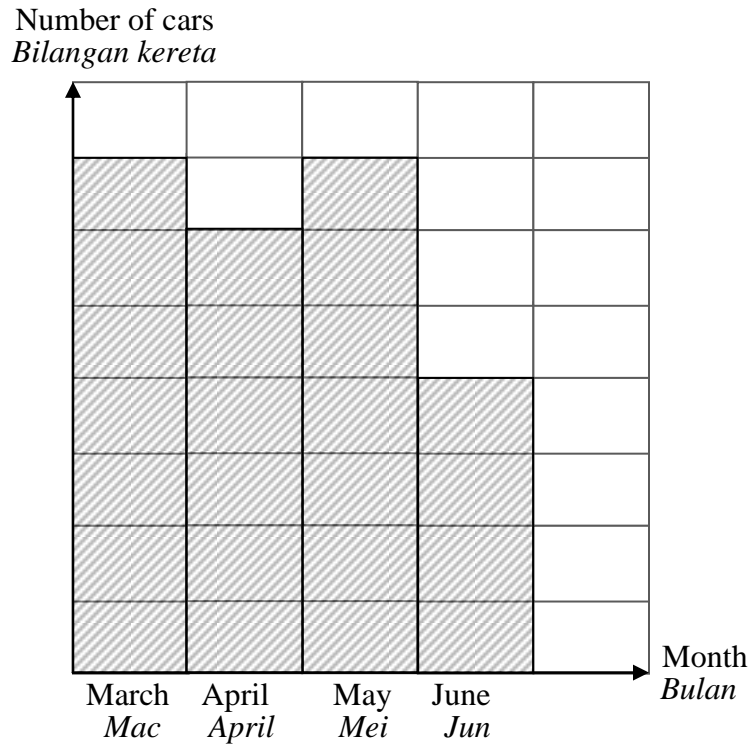
B $-1, 0, 1, 2,$

C $0, 1, 2, 3$

D $-1, 1, 2$

- 27 Diagram 27 is a histogram chart which shows the sales of cars for March, April, May and June.

Rajah 27 ialah histogram yang menunjukkan jualan kereta bagi bulan Mac, April, Mei dan Jun.



The sales during the four months , from March to June is 600 cars.
How many cars being sold in April?

*Jualan sepanjang empat bulan itu, dari bulan Mac hingga bulan Jun ialah 600 kereta.
Berapakah bilangan kereta dijual pada bulan April*

- A 60
- B 70
- C 100
- D 150

- 28 The pie chart in Diagram 28 shows the favourite drink flavours of 720 pupil.

Carta pai dalam Rajah 28 menunjukkan perisa minuman yang digemari oleh 720 murid.

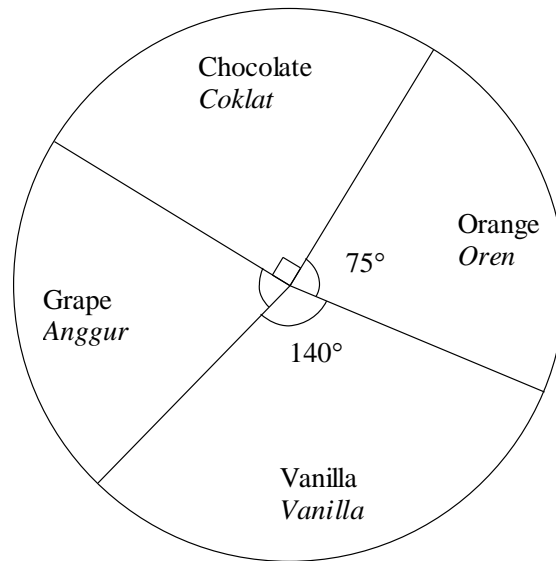


Diagram 28
Rajah 28

Calculate the difference between the number of children who like chocolate flavour drink and that of grape.

Hitungkan beza antara bilangan kanak-kanak yang suka minuman perisa coklat dan bilangan kanak-kanak yang suka perisa anggur.

- A 55
- B 70
- C 110
- D 190

29 Table 29 shows the score of a group of students in a mathematics quiz.

Jadual 2 menunjukkan skor bagi sekumpulan pelajar dalam satu kuiz matematik.

Score <i>Skor</i>	0	1	2	3	4
Frequency <i>Kekerapan</i>	9	10	7	6	8

Table 29
Jadual 29

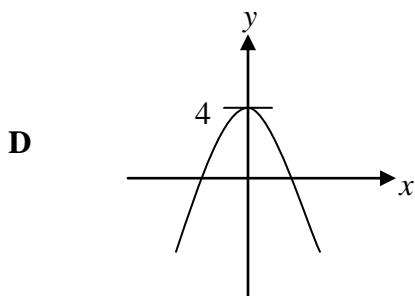
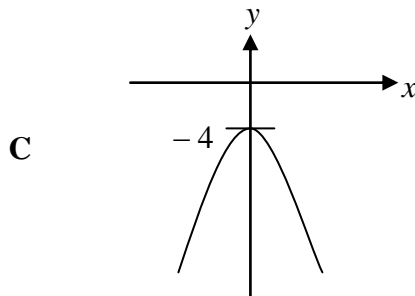
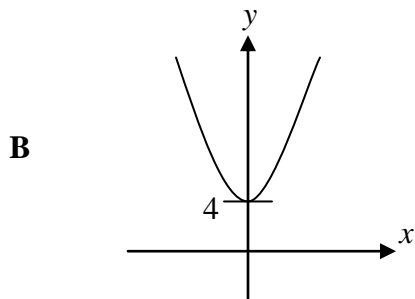
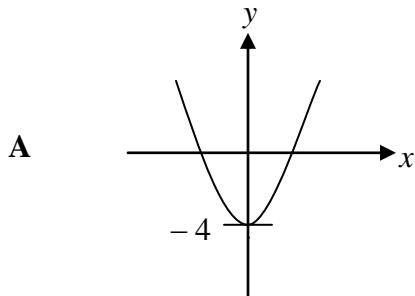
Find the median score.

Cari median skor itu.

- A 0
- B 1
- C 1.5
- D 2

30 Which of the following graphs represents $y = 4 - x^2$

Antara berikut, graf manakah yang menunjukkan $y = 4 - x^2$



- 31 Diagram 31 is a Venn diagram showing set P and set Q .

Rajah 31 ialah gambarajah Venn menunjukkan set P dan set Q .

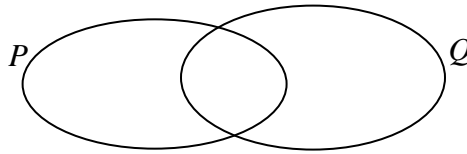


Diagram 31

Rajah 31

It is given that the universal set, $\xi = P \cup Q$, $n(P) = 15$, $n(Q) = 12$ and $n(P \cup Q) = 22$.

Find the value of $n(P \cap Q)$

Diberi bahawa set semesta $\xi = P \cup Q$, $n(P) = 15$, $n(Q) = 12$ dan $n(P \cup Q) = 22$.

Cari nilai $n(P \cap Q)$

- A 10
 B 7
 C 5
 D 3
- 32 If the number of subset P is 32, find $n(P)$.
Jika bilangan subset P ialah 32, cari $n(P)$.
- A 4
 B 5
 C 8
 D 16
- 33 Determine the x -intercept of the straight line $3x + 2y + 12 = 0$
Tentukan pintasan- x bagi garis lurus $3x + 2y + 12 = 0$
- A - 6
 B - 4
 C 4
 D 6

- 34 Find the gradient that joint the points $(-8,0)$ and $(0,4)$.

Cari kecerunan garis yang menghubungkan titik $(-8,0)$ dan titik $(0,4)$.

A -2

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

C $\frac{1}{2}$

D 2

- 35 There are 64 students in Account Class. The probability of picking a student who wears spectacles at random is $\frac{5}{8}$.

Find the number of students who do not wear spectacles in the class.

Terdapat 64 pelajar dalam Kelas Akaun. Kebarangkalian memilih seorang pelajar yang memakai cermin mata secara rawak ialah $\frac{5}{8}$.

Cari bilangan pelajar yang tidak memakai cermin mata dalam kelas itu.

A 24

B 36

C 40

D 48

- 36 Given that the probability of team P to win in a first match and second match are $\frac{1}{5}$, and $\frac{3}{5}$ respectively.

Find the probability of team P to lose in both matches.

Diberi kebarangkalian pasukan P memenangi pertandingan pertama dan kedua masing-masing ialah $\frac{1}{5}$ dan $\frac{3}{5}$.

Cari kebarangkalian pasukan P kalah dalam kedua-dua pertandingan itu.

- A $\frac{22}{25}$
- B $\frac{8}{25}$
- C $\frac{6}{25}$
- D $\frac{3}{25}$

37 Table 37 shows some values of the variables P and Q .

Jadual 37 menunjukkan beberapa nilai bagi pemboleh ubah P dan Q .

P	31	279
Q	2	m

Table 37
Jadual 37

It is given that P varies inversely as the square of Q .
Find the value of m .

*Diberi bahawa P berubah secara songsang dengan kuasa dua Q .
Cari nilai m .*

A $\frac{2}{3}$

B $\frac{3}{2}$

C $\frac{9}{4}$

D $\frac{4}{9}$

- 38 P varies directly to the cube root of X and inversely as Y . Given that the constant is k , find the relation between P , X and Y .

P berubah secara langsung dengan punca kuasa tiga X dan secara songsang dengan Y . Diberi k ialah pemalar, cari hubungan antara P , X dan Y .

A $P = \frac{k X^3}{Y}$

B $P = \frac{k X^{\frac{1}{3}}}{Y}$

C $P = k X^{\frac{1}{3}} Y$

D $P = \frac{k Y^3}{X}$

39 $\frac{1}{2} \begin{pmatrix} 4 & 6 \\ -2 & 0 \end{pmatrix} - \begin{pmatrix} 2 & -5 \\ 3 & 7 \end{pmatrix} =$

A $\begin{pmatrix} 0 & 8 \\ -4 & -7 \end{pmatrix}$

B $\begin{pmatrix} 2 & 11 \\ -5 & 7 \end{pmatrix}$

C $\begin{pmatrix} 2 & 11 \\ -4 & -7 \end{pmatrix}$

D $\begin{pmatrix} 6 & 7 \\ 1 & -7 \end{pmatrix}$

40 Given $(2k \ 3) \begin{pmatrix} 1 & -2 \\ 4 & k \end{pmatrix} = (10 \ 1)$. Find the value of k .

A -1

B 1

C 8

D 11

END OF QUESTION PAPER
KERTAS SOALAN TAMAT