

SULIT

1449/1

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Mathematics

Kertas 1

Ogos/Sept 2008

1¼Jam



JABATAN PELAJARAN NEGERI JOHOR

PEPERIKSAAN PERCUBAAN SPM TINGKATAN 5
2008

MATEMATICS

Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas soalan ini adaah dalam dwibahasa*
2. *Soalan di bahagian atas adalah dalam bahasa Inggeris, diikuti oleh bahasa Melayu.*
3. *Calon dikehendaki membaca maklumat di halaman 2*

Kertas soalan ini mengandungi 26 halaman bercetak

- 1 Round off 0.06955 correct to three significant figures.

Bundarkan 0.06955 betul kepada tiga angka bererti.

- A 0.0695
- B 0.0696
- C 0.0670
- D 0.0700

- 2 Express 0.000306 in standard form.

Ungkapkan 0.000306 dalam bentuk piawai.

- A 3.06×10^{-4}
- B 3.06×10^{-2}
- C 3.06×10^2
- D 3.06×10^4

- 3 Evaluate $\frac{0.000036}{4 \times 10^5}$.

Nilaikan $\frac{0.000036}{4 \times 10^5}$.

- A 9×10^{-11}
- B 9×10^{-5}
- C 9×10
- D 9×10^{10}

- 4 $1110_2 + 10100_2 =$

- A 101010_2
- B 101110_2
- C 100010_2
- D 100000_2

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

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

- A 300
- B 75
- C 15
- D 10

6 In Diagram 1, $JKLMN$ is a regular polygon. JST is a straight line and $LS = MS$.

Dalam Rajah 1, $JKLMN$ ialah sebuah poligon sekata. JST ialah satu garis lurus dan $LS = MS$.

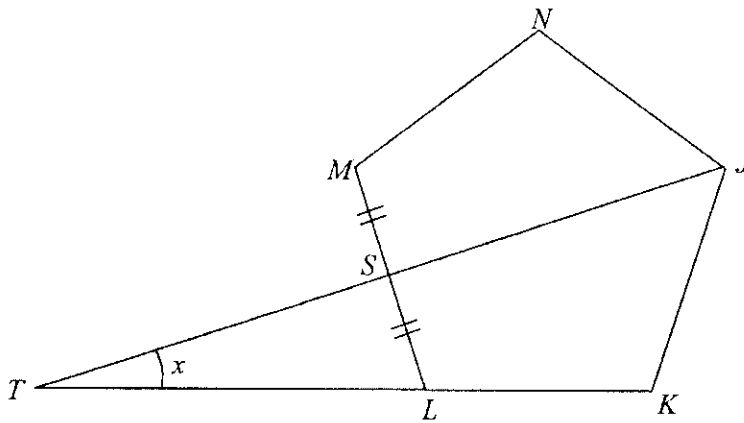


Diagram 1
Rajah 1

Find the value of x .

Cari nilai x .

- A 22°
- B 18°
- C 16°
- D 12°

7

In Diagram 2, $PQRS$ is a parallelogram and QST is a straight line.

Dalam Rajah 2, $PQRS$ ialah sebuah segi empat selari dan QST ialah garis lurus.

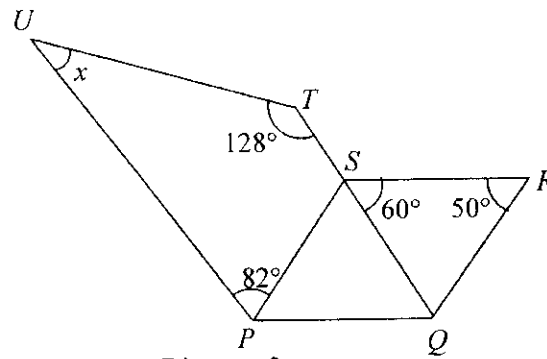


Diagram 2
Rajah 2

Find the value of x .

Cari nilai x .

- A 40°
- B 45°
- C 75°
- D 90°

8

In Diagram 3, UVW is a tangent to the circle with centre O at point V .

Dalam Rajah 3, UVW ialah tangen kepada bulatan berpusat O di titik V .

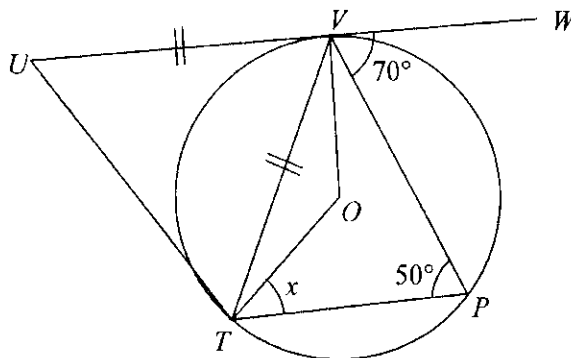


Diagram 3
Rajah 3

Given $TV = UV$, find the value of x .

Diberi $TV = UV$, cari nilai x .

- A 70°
- B 40°
- C 30°
- D 20°

9. Diagram 4 shows two straight lines, ST and $S'T'$ drawn on a square grid.

Rajah 4 menunjukkan dua garis lurus, ST dan $S'T'$, dilukis pada grid segiempat sama.

$S'T'$ is the image of ST under a rotation. Which of points **A**, **B**, **C** or **D** is the centre of the rotation.

*$S'T'$ ialah imej bagi ST di bawah suatu putaran. Antara titik **A**, **B**, **C** atau **D** merupakan pusat putaran yang betul.*

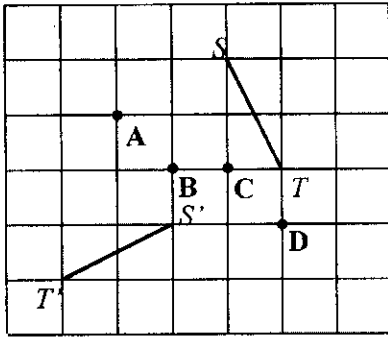


Diagram 4
Rajah 4

- 10 In Diagram 5, the triangle PQR is the image of the triangle SQT under an enlargement.

Rajah 5 menunjukkan segitiga PQR ialah imej bagi segitiga SQT di bawah satu pembesaran.

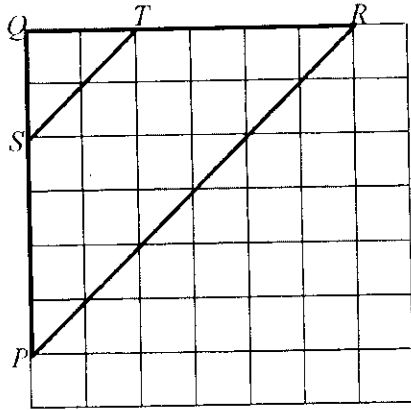


Diagram 5
Rajah 5

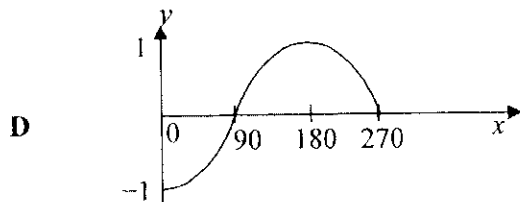
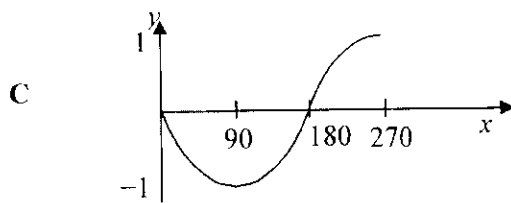
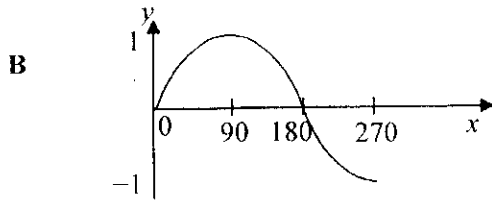
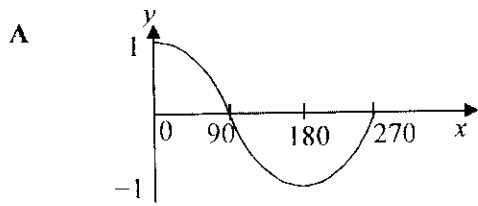
Find the scale factor of the enlargement.

Cari faktor skala pembesaran itu.

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

11 Which of the following graph represents $y = \sin x$ for $0^\circ \leq x \leq 270^\circ$?

Yang manakah yang menunjukkan graf $y = \sin x$ untuk $0^\circ \leq x \leq 270^\circ$?



12 It is given that $\tan \theta = -1.732$ and $0^\circ \leq \theta \leq 360^\circ$. The values of θ are

Di beri $\tan \theta = -1.732$ dan $0^\circ \leq \theta \leq 360^\circ$. Nilai θ ialah.

- A 60° and 120°
- B 120° and 240°
- C 120° and 300°
- D 240° and 300°

- 13 In diagram 6, S is the midpoint of TR and PQR is a straight line. $TR = 12$ cm and $QS = 10$ cm.
Dalam rajah 6, S ialah titik tengah TR dan PQR ialah garis lurus. $TR = 12$ cm dan $QS = 10$ cm.

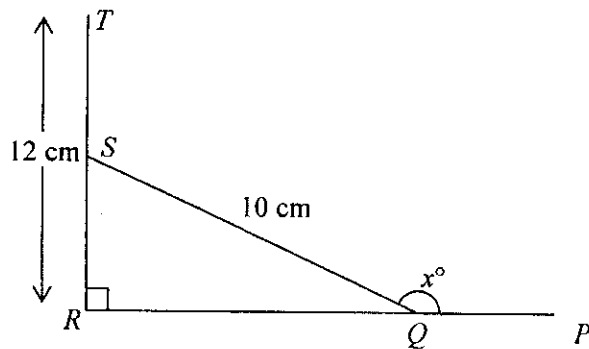


Diagram 6
Rajah 6

The value of $\cos x^\circ$ is

Nilai $\cos x^\circ$ ialah.

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

- 14 Diagram 7 shows a right prism with a horizontal base $ABCD$ and the uniform cross section of the prism is a right-angled triangle.

Rajah 7 menunjukkan sebuah prisma dengan tapak mengufuk $ABCD$. Keratan rentas seragam prisma tersebut ialah segitiga bersudut tegak.

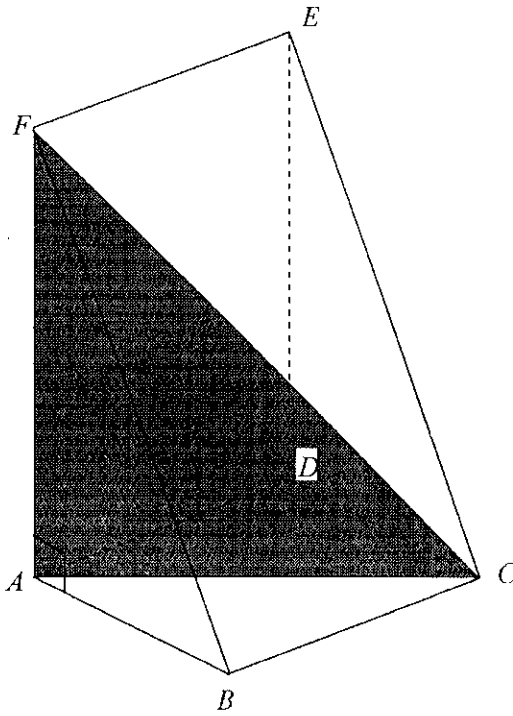


Diagram 7
Rajah 7

Name the angle between the plane AFC and the plane $ADEF$.

Namakan sudut di antara satah AFC dengan satah $ADEF$.

- A FAD
- B CAD
- C FAE
- D CAE

- 15 In Diagram 8, J , K , L and M are four points on a horizontal ground. MN is a vertical pole with the height of 20 m. $JM = ML$ and $\angle JKL = 90^\circ$. Calculate the angle of elevation of vertex N from the point L .

Dalam Rajah 8, J , K , L dan M ialah 4 titik pada permukaan tanah mengufuk. MN ialah sebatang tiang tegak dengan tinggi 20 m. $JM = ML$ dan $\angle JKL = 90^\circ$. Hitung sudut dongakan puncak N dari titik L .

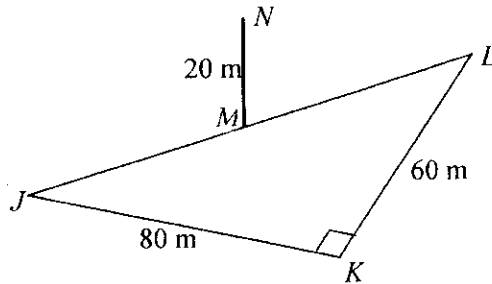


Diagram 8
Rajah 8

- A $21^\circ 48'$
B $26^\circ 34'$
C $33^\circ 41'$
D $66^\circ 25'$

- 16 Diagram 9 shows three points E , F and G lie on a horizontal plane.

Rajah 9 menunjukkan tiga titik E , F dan G yang terletak pada satu satah mengufuk.

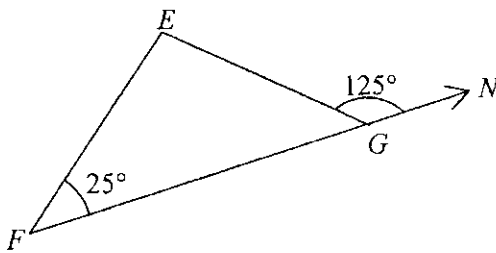


Diagram 9
Rajah 9

Bearing of F from E is

Bering F dari E ialah

- A 125°
B 155°
C 215°
D 235°

17 Calculate the difference in longitude between $A (65^\circ N, 60^\circ E)$ and $B (65^\circ N, 110^\circ W)$.

Hitungkan beza longitud di antara $A (65^\circ U, 60^\circ T)$ and $B (65^\circ U, 110^\circ B)$.

- A 180°
- B 170°
- C 130°
- D 50°

18 In Diagram 10, N is the North Pole and S is the South Pole. NOS is the axis of the earth.

Dalam Rajah 10, U ialah kutub utara dan S ialah kutub selatan. UOS ialah paksi bumi.

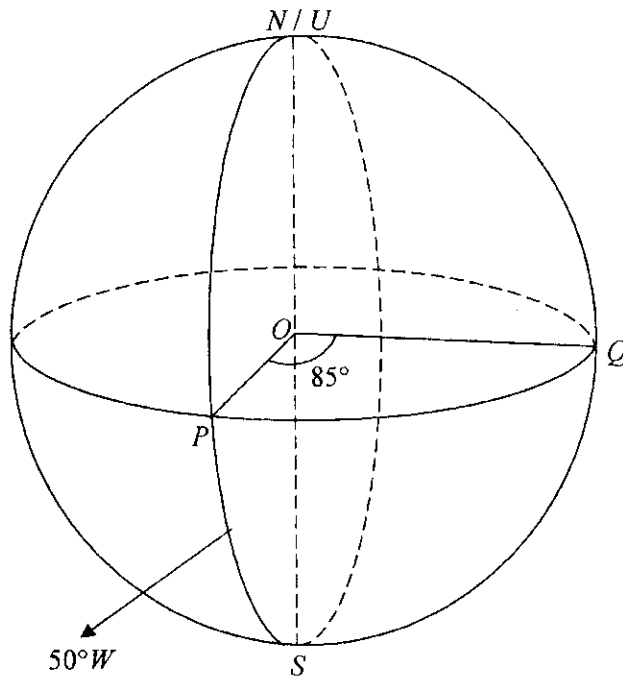


Diagram 10
Rajah 10

The longitude of P is $50^\circ W$ and $\angle POQ$ is 85° . Find the longitude of Q .

Longitud P ialah $50^\circ B$ dan $\angle POQ$ ialah 85° . Cari longitud bagi Q .

- A $35^\circ E$
- B $35^\circ W$
- C $135^\circ E$
- D $135^\circ W$

Dapatkan Skema jawapan di www.banksoalanspm.com

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

- A $3x^2 - 8xy + 8y^2$
 B $3x^2 - 8xy$
 C $3x^2 - 6xy + 8y^2$
 D $3x^2 - 6xy$

20 Given that $2h = \sqrt{5 - 3k}$, express k in terms of h .

Diberi $2h = \sqrt{5 - 3k}$, ungkapkan k dalam sebutan h .

- A $\frac{5 - 4h^2}{3}$
 B $\frac{5 - 2k}{3}$
 C $\frac{4h^2 - 5}{3}$
 D $\frac{4h^2 - 3}{5}$

21 Express $\frac{2n - 3}{5n^2} - \frac{4n - 3}{10n}$ as a single fraction in its simplest form.

Ungkapkan $\frac{2n - 3}{5n^2} - \frac{4n - 3}{10n}$ sebagai satu pecahan tunggal dalam bentuk termudah.

- A $\frac{-6 + n - 4n^2}{10n^2}$
 B $\frac{-6 - n - 4n^2}{10n^2}$
 C $\frac{-6 - 7n - 4n^2}{10n^2}$
 D $\frac{-6 + 7n - 4n^2}{10n^2}$

- 22 Given that $2 - \frac{x}{3} = x - 2$, find the value of x .

Diberi $2 - \frac{x}{3} = x - 2$, cari nilai x .

- A 1
- B 2
- C 3
- D 4

- 23 Simplify $\frac{2m^3n}{(3mn^{-2})^2}$.

Ringkaskan $\frac{2m^3n}{(3mn^{-2})^2}$.

- A $\frac{2m^2n^5}{9}$
- B $\frac{mn^3}{3}$
- C $\frac{2mn^5}{9}$
- D $\frac{2m^2n^3}{3}$

- 24 Given that $6^{2y} = \frac{216}{6^y}$, find the value of y .

Diberi $6^{2y} = \frac{216}{6^y}$, cari nilai y .

- A 1
- B 3
- C 6
- D 12

- 25 List all the integers of y that satisfy the inequalities $3 - 2y < 5$ and $2y - 4 \leq 7$.
Senaraikan semua integer y yang memuaskan ketaksamaan $3 - 2y < 5$ dan $2y - 4 \leq 7$.

- A 0, 1, 2, 3, 4
 B 0, 1, 2, 3, 4, 5
 C -1, 0, 1, 2, 3, 4
 D -1, 0, 1, 2, 3, 4, 5

- 26 Table 1 shows the distribution of the scores of 40 students in a health quiz.
Jadual 1 menunjukkan taburan markah bagi 40 orang pelajar dalam sebuah pertandingan kuiz kesihatan.

Score Markah	1	2	3	4
Frequency Kekerapan	6	17	13	4

Table 1
 Jadual 1


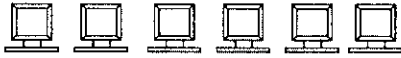
If the above data is represented using a pie chart, then the angle of the sector of the modal score is

Jika data di atas diwakilkan dengan sebuah carta pai, maka sudut sektor mewakili skor mod ialah

- A 90°
 B 117°
 C 153°
 D 270°

- 27 Diagram 11 is a pictogram which shows the sales of computers in a particular month. The sales in March are not shown.

Rajah 11 ialah piktograf yang menunjukkan jualan komputer. Jualan pada bulan Mac tidak ditunjukkan.

January <i>Januari</i>	
February <i>Februari</i>	
March <i>Mac</i>	


 Represents 5 computers
Mewakili 5 komputer

Diagram 11
Rajah 11

The sales in February are $33\frac{1}{3}\%$ of the total sales during the three months, from

January to March.

How many computers were sold in March?

Jualan pada bulan Februari ialah $33\frac{1}{3}\%$ daripada jumlah jualan sepanjang tiga

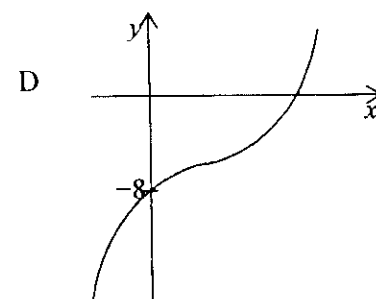
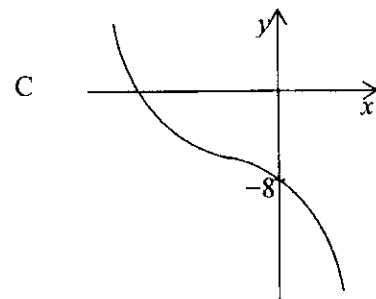
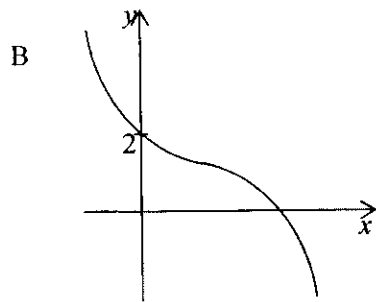
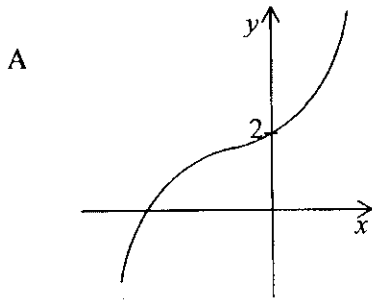
bulan itu, dari bulan Januari hingga bulan Mac.

Berapakah bilangan komputer yang dijual pada bulan Mac?

- A 100
- B 70
- C 30
- D 20

28 Which of the following graphs represents $y = 2x^3 - 8$?

Antara yang berikut, yang manakah mewakili graf $y = 2x^3 - 8$?



- 29 Diagram 12 is a Venn diagram showing the element of sets ξ , P and Q .

Rajah 12 ialah gambar rajah Venn yang menunjukkan unsur-unsur set semesta, ξ , P dan Q .

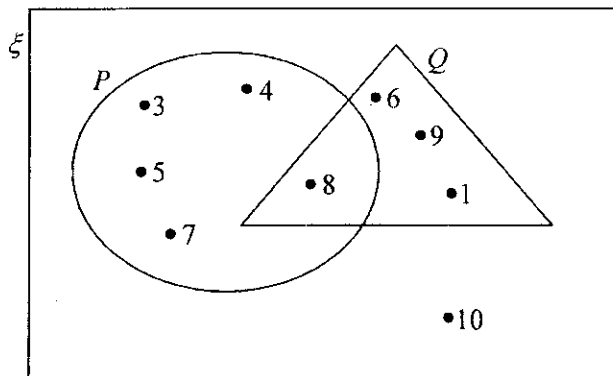


Diagram 12
Rajah 12

Set $P' \cap Q$ is

Set $P' \cap Q$ ialah

- A { 10 }
 B { 1, 6, 9 }
 C { 3, 4, 5, 7 }
 D { 1, 6, 9, 10 }
- 30 Given that $L = \{ 1, 3, 5, 7, 9, 15, 17, 19 \}$
 $M = \{ 2, 3, 5, 7, 9, 13 \}$
 $N = \{ 7, 11, 23, 25 \}$

such that $\xi = L \cup M \cup N$.

Find the number of elements for the set $L \cap M \cap N$.

Diberi bahawa $L = \{ 1, 3, 5, 7, 9, 15, 17, 19 \}$

$M = \{ 2, 3, 5, 7, 9, 13 \}$

$N = \{ 7, 11, 23, 25 \}$

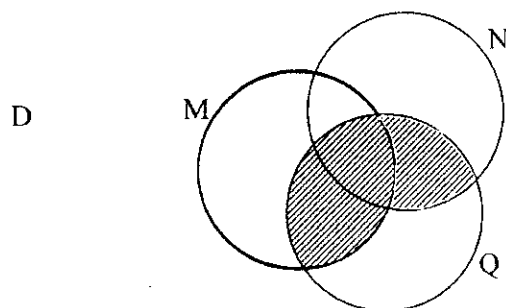
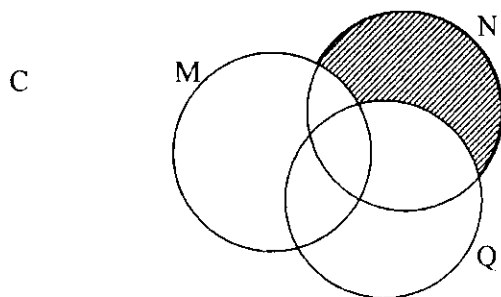
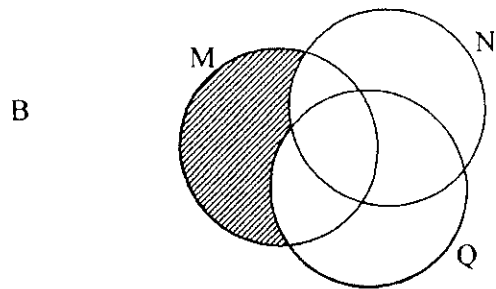
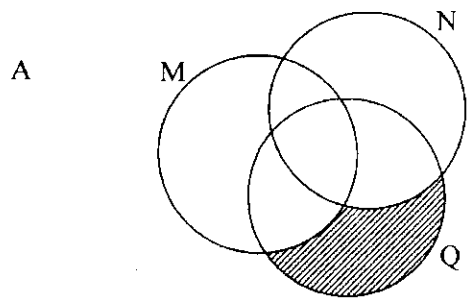
dengan keadaan $\xi = L \cup M \cup N$

Cari bilangan unsur bagi set $L \cap M \cap N$.

- A 9
 B 8
 C 7
 D 6

- 31 Which of the shaded regions in the following Venn diagram represents set $(M \cup N) \cap Q$?

Yang mana antara kawasan berlorek dalam gambarajah Venn di bawah mewakili set $(M \cup N) \cap Q$?



32 The gradient of the straight line $4x - 2y = 3$ is

Kecerunan bagi garis lurus $4x - 2y = 3$ ialah

- A -4
- B -2
- C 2
- D 4

33 In the Diagram 13, EF is a straight line with gradient 2.

Dalam Rajah 13, EF ialah garis lurus dengan kecerunan 2.

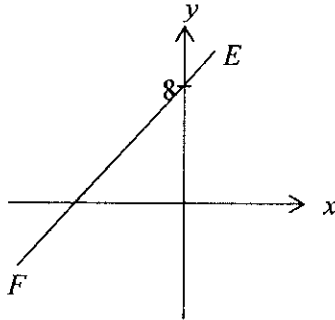


Diagram 13

Rajah 13

Find the x -intercept of the straight line EF .

Cari pintasan- x bagi garis lurus EF .

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

- 34 A box contains 11 cards with label 21, 22, 23, 25, 26, 27, 28, 29, 33, 34 and 35. A card is chosen at random from the box. Find the probability, that the number chose is an odd number.

Sebuah kotak mengandungi 11 keping kad yang berlabel 21, 22, 23, 25, 26, 27, 28, 29, 33, 34 dan 35. Sekeping kad dipilih secara rawak dari kotak itu. Cari kebarangkalian bahawa kad yang dipilih ialah kad yang berlabel nombor ganjil.

- A $\frac{4}{11}$
 B $\frac{5}{11}$
 C $\frac{6}{11}$
 D $\frac{7}{11}$

Dapatkan Skema jawapan di www.banksoalanspm.com

- 35 Class 5 Kemboja consist of male students and female students. The number of male students in the class is 16. If one student is chosen at random, the probability of choosing a male student is $\frac{4}{9}$. Determine the number of female students in 5 Kemboja?

Kelas 5 Kemboja mengandungi pelajar lelaki dan pelajar perempuan. Jumlah pelajar lelaki di kelas tersebut seramai 16 orang. Jika seorang pelajar dipilih secara rawak, kebarangkalian mendapat pelajar lelaki ialah $\frac{4}{9}$. Berapakah jumlah pelajar perempuan di kelas 5 Kemboja?

- A 20
 B 24
 C 28
 D 36

- 36 Table 2 shows some values of the variables x and y .

Jadual 2 menunjukkan nilai bagi pembolehubah x dan y .

x	3	36
y	18	m

Table 2
Jadual 2

It is given that y varies directly as x . Calculate the value of m .

Diberi bahawa y berubah secara langsung dengan x . Hitungkan nilai m .

- A 6
- B 72
- C 108
- D 216

- 37 Q varies inversely as the cube of N . Given that the constant is k , find the relation between Q and N .

Q bertambah secara songsang dengan kuasa tiga N . Diberi k ialah pemalar, cari hubungan antara Q dan N .

- A $Q = kN^{\frac{1}{3}}$
- B $Q = \frac{k}{N^{\frac{1}{3}}}$
- C $Q = kN^3$
- D $Q = \frac{k}{N^3}$

38 Table 3 shows the relation between x , y and z .

Jadual 3 menunjukkan hubungan antara x , y dan z .

x	9	12
y	3	w
z	16	36

Table 3
Jadual 3

Given that $x \propto \frac{y}{\sqrt{z}}$, calculate the value of w .

Diberi $x \propto \frac{y}{\sqrt{z}}$, hitungkan nilai w .

- A 3
- B 4
- C 6
- D 12

$$(6 \ -1) \begin{pmatrix} 2 \\ -5 \end{pmatrix} =$$

- A $\begin{pmatrix} 6 & -1 \\ 2 & -5 \end{pmatrix}$
- B $\begin{pmatrix} 12 \\ 5 \end{pmatrix}$
- C $(12 \ 5)$
- D (17)

Find the value of x in the following matrix equation.

Cari nilai x dalam persamaan matriks yang berikut.

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

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