1449/1
Matematik
Kertas 1
September
2007

1¼ jam

MAKTAB RENDAH SAINS MARA

PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA 2007

MATEMATIK

Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas soalan ini adalah dalam dwibahasa.*

2. *Soalan di halaman kiri adalah dalam bahasa Inggeris. Soalan di halaman kanan adalah yang sepadan dalam bahasa Melayu.*

3. *Calon dikehendaki membaca maklumat di halaman 2 dan halaman 3*

Kertas soalan ini mengandungi 41 halaman bercetak dan 3 halaman tidak bercetak

INFORMATION FOR CANDIDATES

1. *This question paper consists of* **40** *questions*.
2. *Answer* **all** *questions.*
3. *Answer each question by blackening the correct space on the answer sheet.*
4. *Blacken only* **one** *space for each question.*
5. *If you wish to change your answer, erase the blackened mark that you have made. Then blacken the space for the new answer.*
6. *The diagrams in the questions provided are not drawn to scale unless stated.*
7. *A list of formulae is provided on pages 4 to 7.*
8. *A booklet of four-figure mathematical tables is provided.*
9. *You may use a non-programmable scientific calculator.*

MAKLUMAT UNTUK CALON

1. *Kertas soalan ini mengandungi* **40** *soalan.*

2. *Jawab* **semua** *soalan.*

3. *Jawab dengan menghitamkan ruangan yang betul pada kertas jawapan.*

4. *Bagi setiap soalan hitamkan* **satu** *ruangan sahaja.*

5. *Sekiranya anda hendak menukar jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.*

6. *Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*

7. *Satu senarai rumus disediakan di halaman 4 hingga 7.*

8. *Sebuah buku sifir matematik empat angka disediakan.*

9. *Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogramkan.*

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

RELATIONS

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

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

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

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

5. $P(A) = \frac{n(A)}{n(S)}$

6. $P(A') = 1 - P(A)$

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

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

9. Average speed $= \frac{\text{distance travelled}}{\text{time taken}}$

10. Mean $= \frac{\text{sum of data}}{\text{number of data}}$

11. Mean $= \frac{\text{Sum of (class mark} \times \text{frequency)}}{\text{sum of frequencies}}$

12. Pythagoras Theorem, $c^2 = a^2 + b^2$

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

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

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

PERKAITAN

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

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

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

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

5. $P(A) = \frac{n(A)}{n(S)}$

6. $P(A') = 1 - P(A)$

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

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

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

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

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

12. Teorem Pithagoras, $c^2 = a^2 + b^2$

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

14. $m = -\frac{pintasan - y}{pintasan - x}$

SHAPE AND SPACE

1. Area of trapezium = $\frac{1}{2} \times$ sum of parallel sides $\times$ height
2. Circumference of circle = $\pi d = 2\pi r$
3. Area of circle = πr^2
4. Curved surface area of cylinder = $2\pi rh$
5. Surface area of sphere = $4\pi r^2$
6. Volume of right prism = cross sectional area $\times$ length
7. Volume of cylinder = $\pi r^2 h$
8. Volume of cone = $\frac{1}{3}\pi r^2 h$
9. Volume of sphere = $\frac{4}{3}\pi r^3$
10. Volume of right pyramid = $\frac{1}{3} \times$ base area $\times$ height
11. Sum of interior angles of a polygon = $(n - 2) \times 180^o$
12. $\frac{\text{arc length}}{\text{circumference of circle}} = \frac{\text{angle subtended at centre}}{360^\circ}$
13. $\frac{\text{area of sector}}{\text{area of circle}} = \frac{\text{angle subtended at centre}}{360^\circ}$
14. Scale factor, $k = \frac{PA'}{PA}$
15. Area of image = $k^2 \times$ area of object

BENTUK DAN RUANG

1. Luas trapezium = $\frac{1}{2}$ × hasiltambah dua sisi selari × tinggi

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

3. Luas bulatan = πj^2

4. Luas permukaan melengkung silinder = $2\pi jt$

5. Luas permukaan sfera = $4\pi j^2$

6. Isipadu prisma tegak = luas keratan rentas × panjang

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

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

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

10. Isipadu piramid tegak = $\frac{1}{3}$ × luas tapak × tinggi

11. Hasil tambah sudut pedalaman poligon = $(n - 2) \times 180^o$

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

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

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

15. Luas imej = k^2 × luas objek

*Answer **all** questions*

1 Round off 0.04328 correct to three significant figures.

A 0.04
B 0.043
C 0.0432
D 0.0433

2 The straight line $2ky = 3x + 1$ is parallel to the straight line $2y - x = 4$.
Find the value of k.

A 3

B 1

C $\frac{1}{3}$

D $-\frac{1}{3}$

3 $\frac{0.00576}{(8\times10^{-3})^2} =$

A 9.0×10^{-11}
B 9.0×10^{1}
C 3.6×10^{-10}
D 3.6×10^{2}

4 Express 111_5 as a number to the base eight.

A 7_8
B 31_8
C 36_8
D 37_8

5 $11000_2 - 1011_2 =$

A 101_2
B 1001_2
C 1011_2
D 1101_2

Jawab **semua** *soalan*

1 Bundarkan 0.04328 betul kepada tiga angka bererti.

A 0.04
B 0.043
C 0.0432
D 0.0433

2 Garis lurus $2ky = 3x + 1$ adalah selari dengan garis lurus $2y - x = 4$.
Carikan nilai *k*.

A 3

B 1

C $\frac{1}{3}$

D $-\frac{1}{3}$

3 $\frac{0.00576}{(8\times10^{-3})^2}$ =

A 9.0×10^{-11}
B 9.0×10^{1}
C 3.6×10^{-10}
D 3.6×10^{2}

4 Ungkapkan 111_5 sebagai nombor dalam asas lapan.

A 7_8
B 31_8
C 36_8
D 37_8

5 $11000_2 - 1011_2$ =

A 101_2
B 1001_2
C 1011_2
D 1101_2

6 In Diagram 1, *MN*, *PQ* and *RS* are parallel.

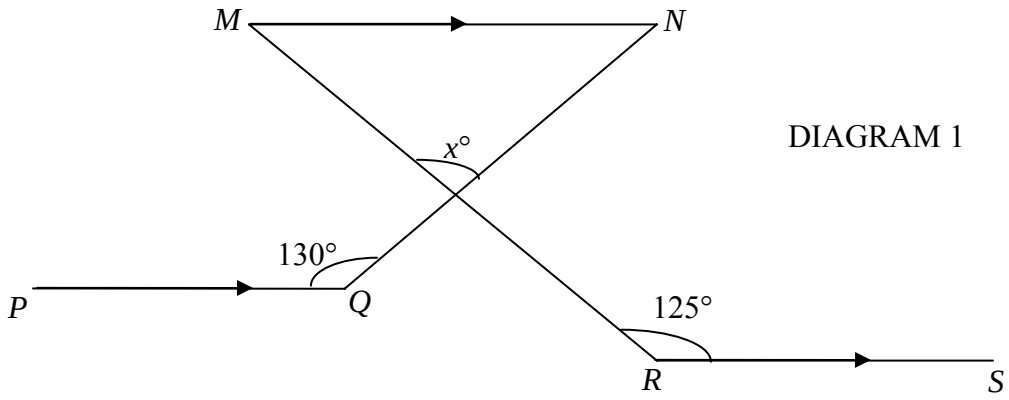


DIAGRAM 1

The value of x is

A 50

B 55

C 75

D 105

7 In Diagram 2, *PQRSTU* is a regular hexagon. *QSV* and *UTV* are straight lines.

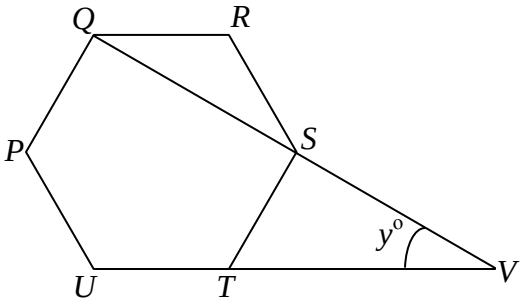


DIAGRAM 2

Find the value of y.

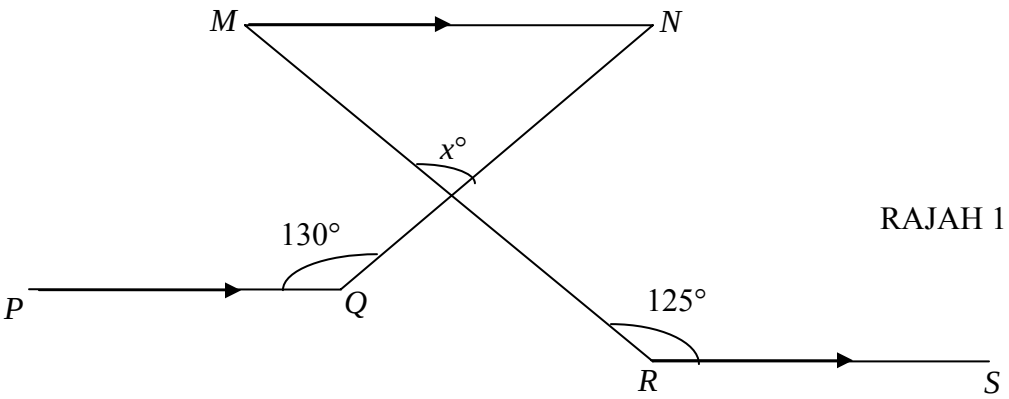
A 18

B 30

C 60

D 72

6 Dalam Rajah 1, *MN*, *PQ* dan *RS* adalah selari.



RAJAH 1

Nilai *x* ialah

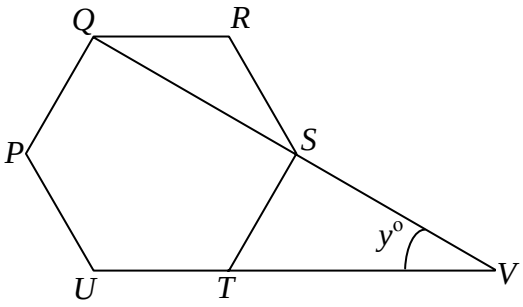
A 50

B 55

C 75

D 105

7 Dalam Rajah 2, *PQRSTU* ialah sebuah heksagon sekata. *QSV* dan *UTV* ialah garislurus.



RAJAH 2

Carikan nilai *y*.

A 18

B 30

C 60

D 72

8 In Diagram 3, *PQR* and *RS* are tangents to the circle with centre *O* at *Q* and *S*.

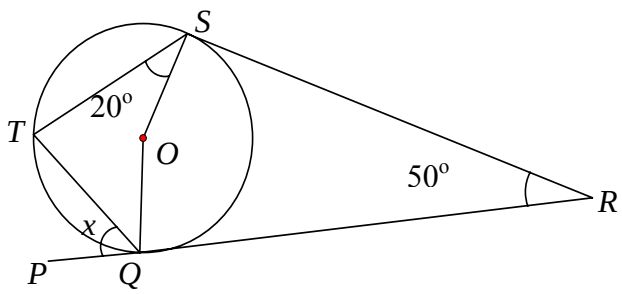


DIAGRAM 3

Find the value of *x*.

A 20^o
B 45^o
C 65^o
D 70^o

9 In Diagram 4, *PSR* is a straight line. Given that $\cos x° = \frac{4}{5}$.

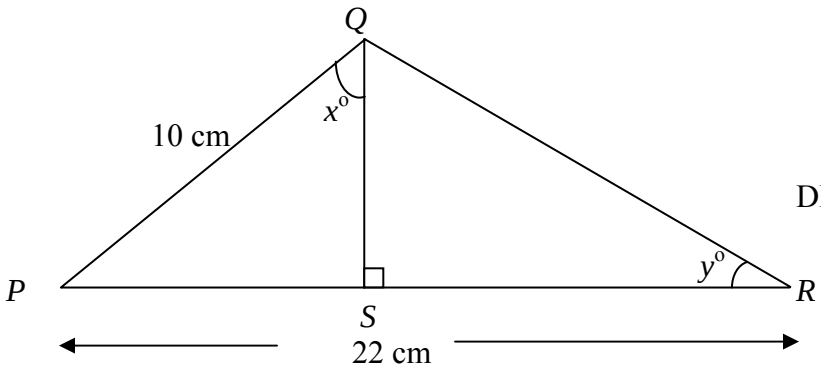
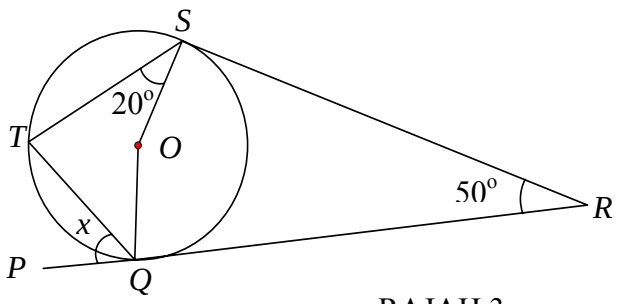


DIAGRAM 4

Find the value of $\tan y°$.

A $\frac{3}{8}$
B $\frac{3}{7}$
C $\frac{1}{2}$
D $\frac{2}{3}$

8 Dalam Rajah 3, *PQR* dan *RS* adalah tangen di *Q* dan *S* bagi bulatan berpusat di *O*.

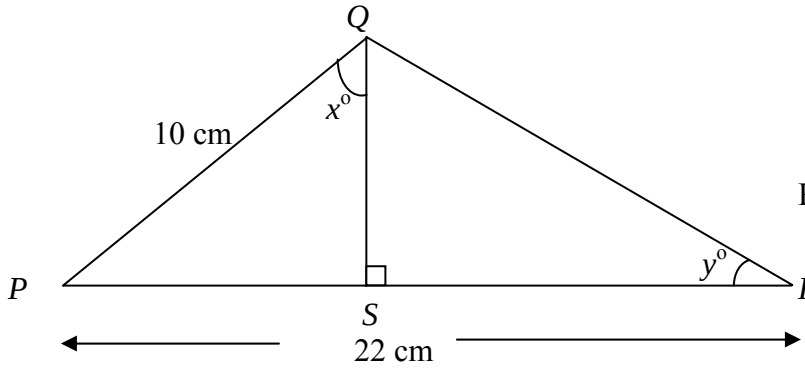


RAJAH 3

Kirakan nilai *x*.

A 20^o
B 45^o
C 65^o
D 70^o

9 Dalam Rajah 4, *PSR* adalah garis lurus. Diberi bahawa kos $x^o = \frac{4}{5}$.



RAJAH 4

Carikan nilai bagi tan y^o.

A $\frac{3}{8}$
B $\frac{3}{7}$
C $\frac{1}{2}$
D $\frac{2}{3}$

10 Diagram 5 shows three points *R*, *S* and *T* on a horizontal ground. *RS* = 24m and *ST* = 7m. *RP* with the height of 8.5m and *TQ* are two vertical flag poles. Given that, the angle of elevation of point *Q* from point *P* is 22.5°.

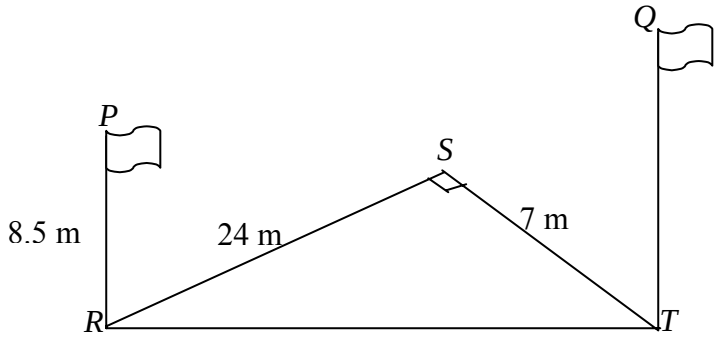
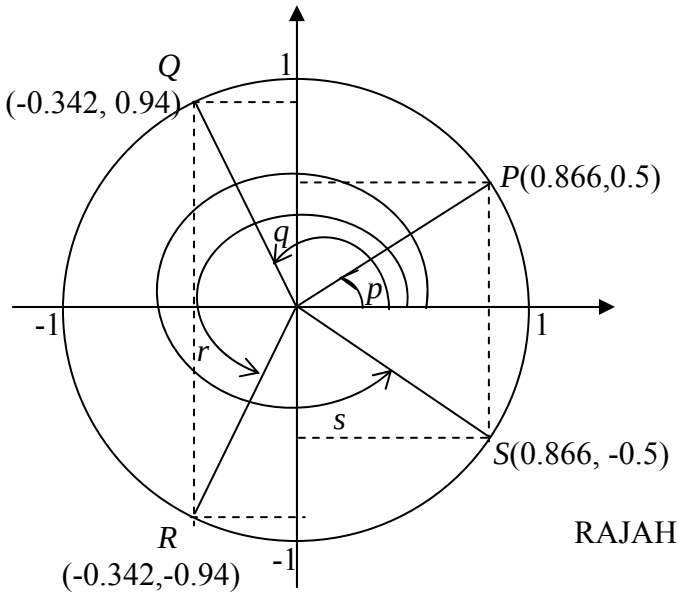


DIAGRAM 5

Calculate the height, in m,of flag TQ.

A 9.57
B 10.36
C 18.07
D 18.86

11 Diagram 6 shows a unit circle with four points *P*, *Q*, *R* and *S*.

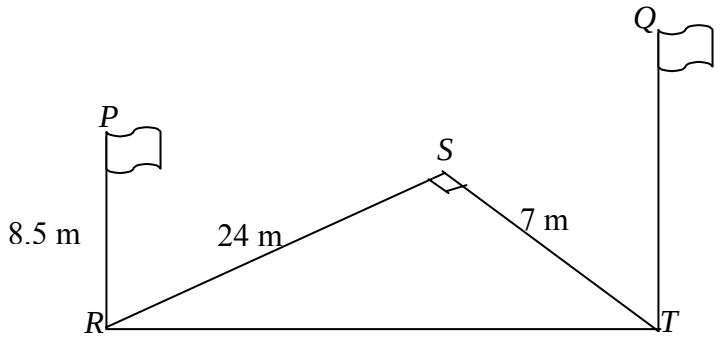


RAJAH 6

Determine which point will give the value of tangent, approximately equals to -2.75.

A *P*
B *Q*
C *R*
D *S*

10 Rajah 5 menunjukkan tiga titik *R*, *S* dan *T* di atas satah mengufuk. *RS* = 24m dan *ST* = 7m. *RP* dengan ketinggian 8.5m dan *TQ* adalah dua batang tiang tegak. Diberi bahawa, sudut dongak bagi titik *Q* dari titik *P* ialah 22.5°.

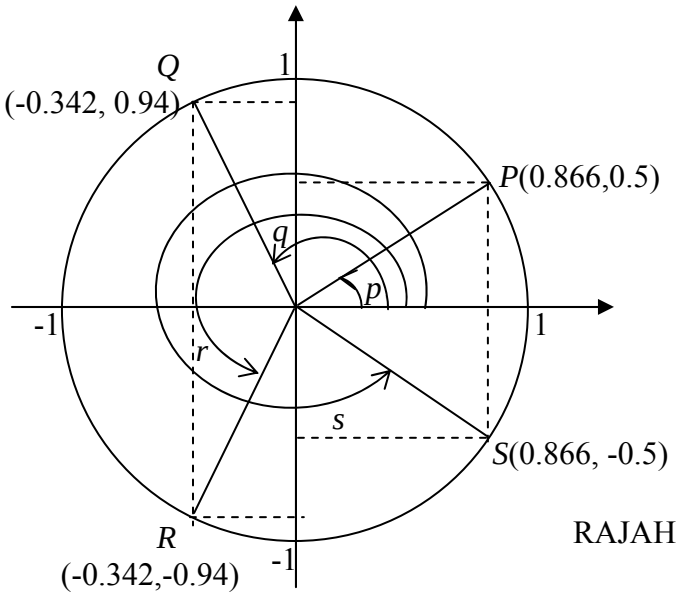


RAJAH 5

Hitungkan tinggi , dalam m, bagi tiang *TQ*.

A 9.57
B 10.36
C 18.07
D 18.86

11 Rajah 6 menunjukkan bulatan unit dengan empat titik *P*, *Q*, *R* dan *S*.



RAJAH 6

Tentukan titik manakah yang nilai tangennya hampir kepada -2.75.

A *P*
B *Q*
C *R*
D *S*

12 Diagram 7 shows a cuboid with a square base *PQRS*. *M* is the midpoint of *VW*.

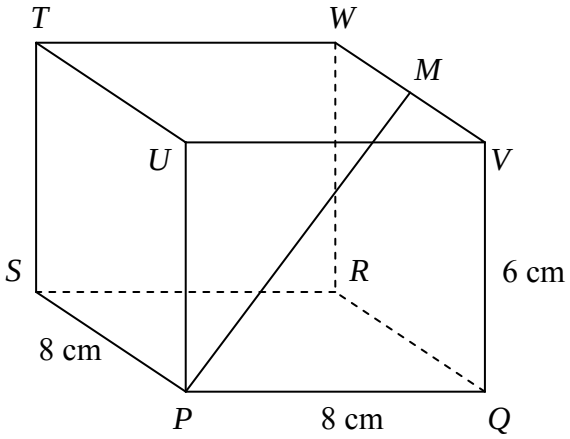


DIAGRAM 7

Calculate the angle between the line *PM* and the plane *PSTU*.

A 56.15^{o}
B 49.97^{o}
C 36.87^{o}
D 33.85^{o}

13 Diagram 8 shows three points *P, Q* and *R* on a horizontal ground. Given that *PQ* = *QR* = *PR* and *Q* is due east of point *P*.

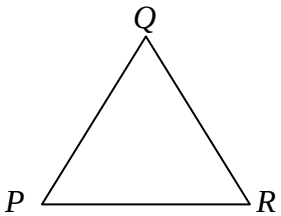
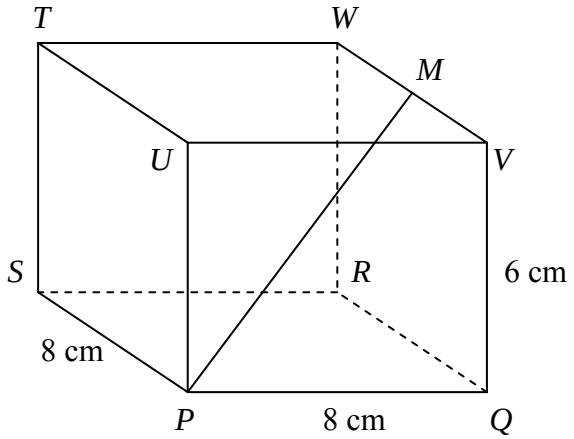


DIAGRAM 8

Find the bearing of point *R* from point *Q*.

A 030^{0}
B 120^{0}
C 210^{0}
D 330^{0}

12 Rajah 7 menunjukkan sebuah kuboid dengan tapak segiempat tepat $PQRS$. M ialah titik tengah VW .

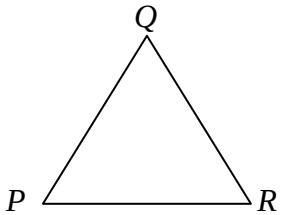


RAJAH 7

Hitungkan sudut di antara garis PM dan satah $PSTU$.

A 56.15^{o}
B 49.97^{o}
C 36.87^{o}
D 33.85^{o}

13 Rajah 8 menunjukkan tiga titik P, Q dan R di atas permukaan rata. Diberi $PQ = QR = PR$ dan titik Q berada di timur titik P.



RAJAH 8

Carikan bearing titik R dari titik Q.

A 030^{0}
B 120^{0}
C 210^{0}
D 330^{0}

14 In Diagram 9, *KLMN* is a straight line. *LR*, *MQ* and *NP* are parallel.

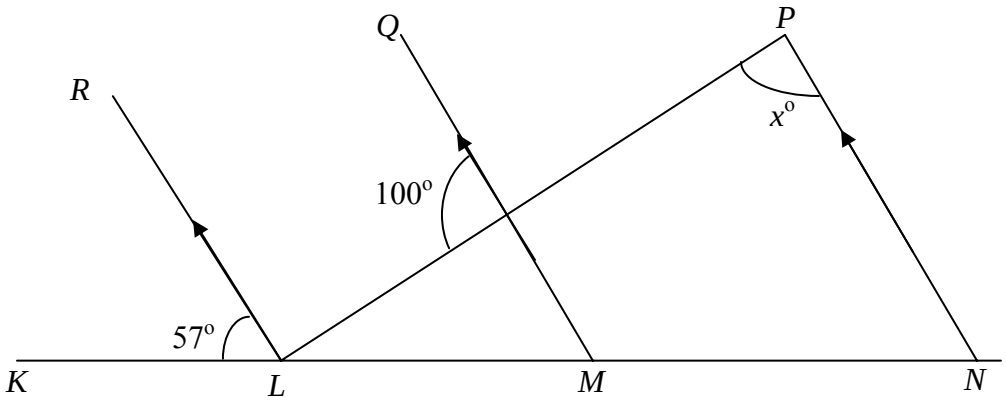


DIAGRAM 9

The value of *x* is

A 43
B 57
C 80
D 100

15 Diagram 10 shows a point *X* on the surface of the earth.

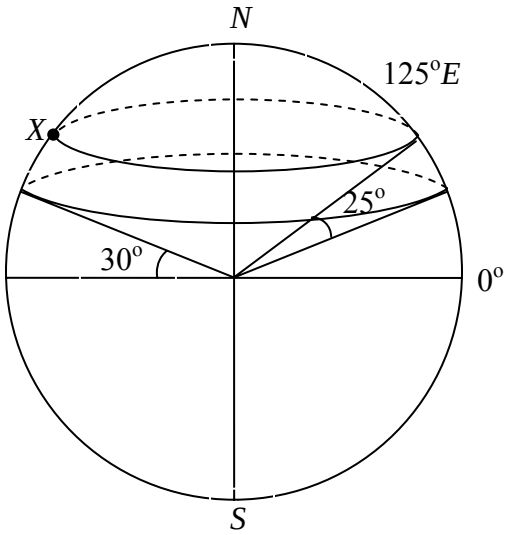
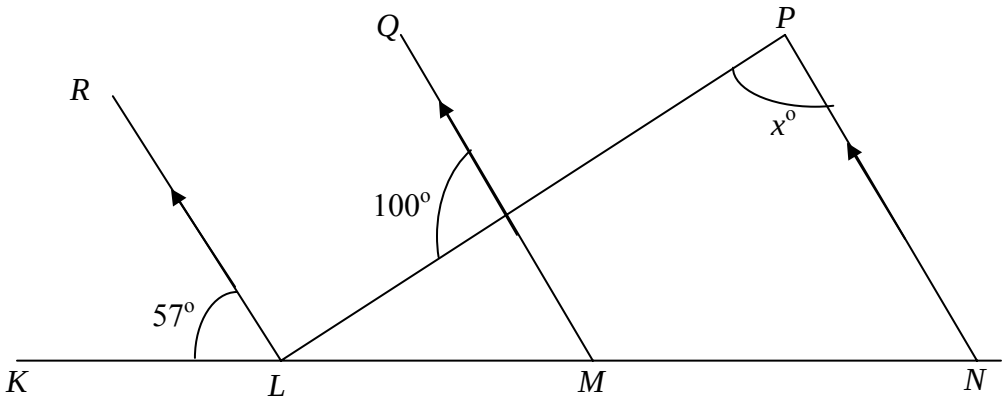


DIAGRAM 10

State the position of point *X*.

A (25°*N*, 55°*W*)
B (25°*N*, 125°*E*)
C (55°*N*, 55°*W*)
D (55°*N*, 125°*E*)

14 Dalam Rajah 9, *KLMN* ialah garis lurus. *LR*, *MQ* dan *NP* adalah selari.

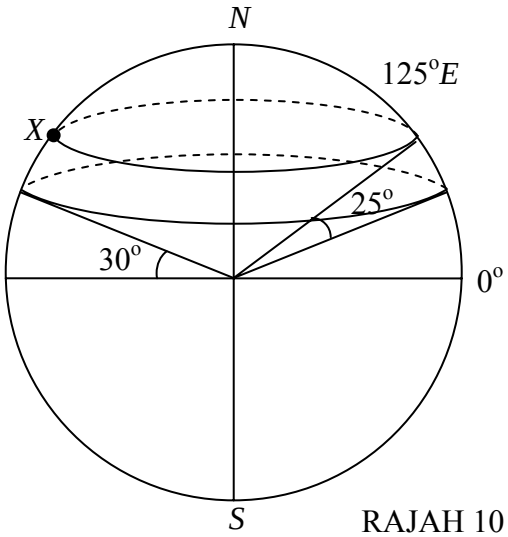


RAJAH 9

Nilai *x* ialah

A 43
B 57
C 80
D 100

15 Rajah 10 menunjukkan titik *X* pada permukaan bumi.



RAJAH 10

Nyatakan kedudukan titik *X*.

A ($25^{o}U$, $55^{o}B$)
B ($25^{o}U$, $125^{o}T$)
C ($55^{o}U$, $55^{o}B$)
D ($55^{o}U$, $125^{o}T$)

16 Factorise completely $28h^3 - 7h$

A $7h(4h^2)$
B $7h\ (4h^2 - 1)$
C $7h(2h - 1)(2h - 1)$
D $7h(2h - 1)(2h + 1)$

17 In Diagram 11 , the square $P'Q'R'S'$ is the image of the square $PQRS$ under a clockwise rotation of 90^o.

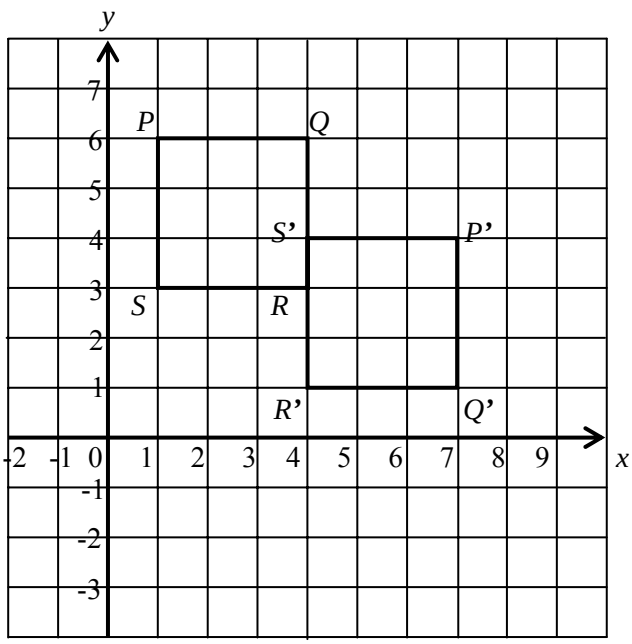


DIAGRAM 11

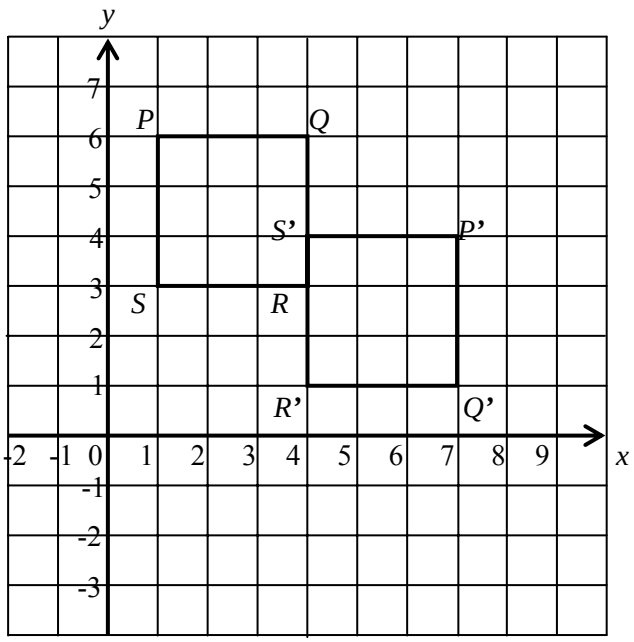
Find the coordinates of the centre of rotation.

A (3 , 2)
B (2 , 2)
C (1 , 2)
D (1 , 0)

16 Faktorkan selengkapnya $28h^3 - 7h$

A $7h(4h^2)$
B $7h(4h^2 - 1)$
C $7h(2h - 1)(2h - 1)$
D $7h(2h - 1)(2h + 1)$

17 Dalam Rajah 11 , segiempat sama *P'Q'R'S'* ialah imej bagi segiempat sama *PQRS* di bawah putaran 90^o ikut arah pusingan jam.



RAJAH 11

Cari koordinat pusat putaran itu.

A (3 , 2)
B (2 , 2)
C (1 , 2)
D (1 , 0)

18 In Diagram 12, point N is the image of point M under a certain transformation $\boldsymbol{T}$.

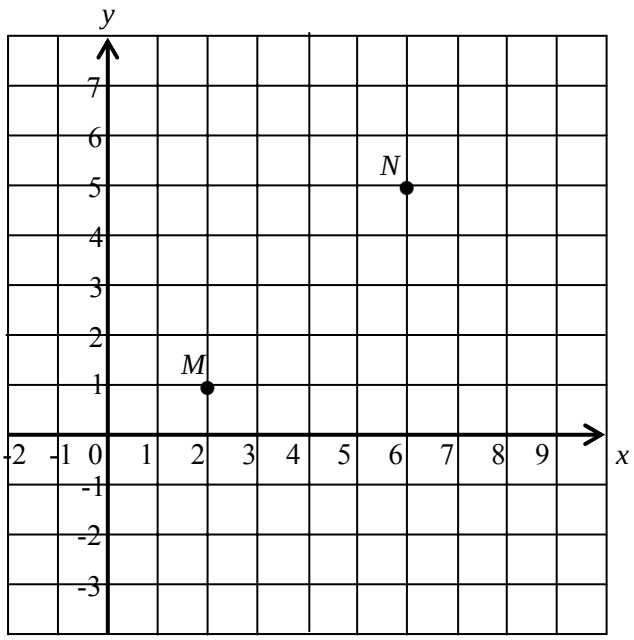


DIAGRAM 12

The transformation $\boldsymbol{T}$ is

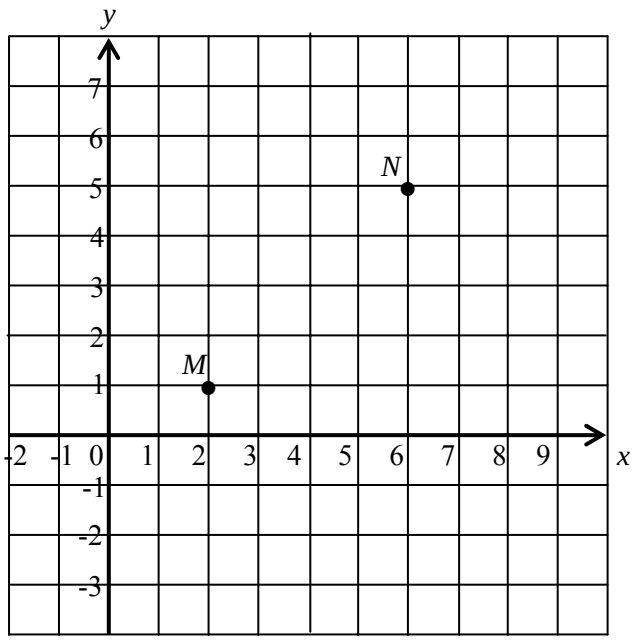
A translation $\begin{pmatrix} -4 \\ -4 \end{pmatrix}$

B reflection about the line $y = 6 - x$.

C rotation 90^{o} clockwise about the $(6\ ,\ 0)$

D enlargement with scale factor 3 about the point $(0\ ,\ -1)$

18 Dalam Rajah 12 , titik *N* ialah imej bagi titik *M* di bawah satu penjelmaan ***T***.



RAJAH 12

Penjelmaan ***T*** ialah

A translasi $\begin{pmatrix} -4 \\ -4 \end{pmatrix}$,

B pantulan pada garis $y = 6 - x$,

C putaran 90^{o} ikut arah pusingan jam pada titik $(6 , 0)$,

D pembesaran dengan faktor skala 3 pada titik $(0 , -1)$.

19 In Diagram 13 , ***R*** is an anticlockwise rotation of 90^{o} about the centre $(4\ ,\ 1)$ and ***S*** is the reflection about the line $y = 1$.

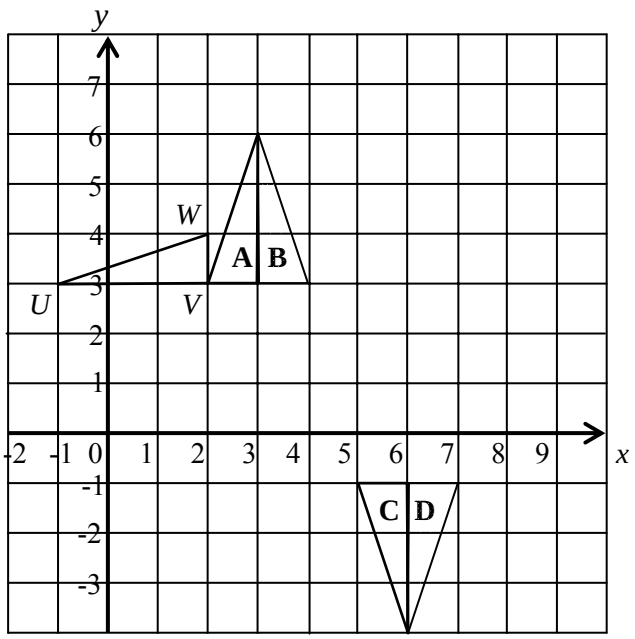


DIAGRAM 13

Among the triangles marked **A** , **B** , **C** and **D** , which is the image of the triangle UVW under the combined transformation ***RS*** ?

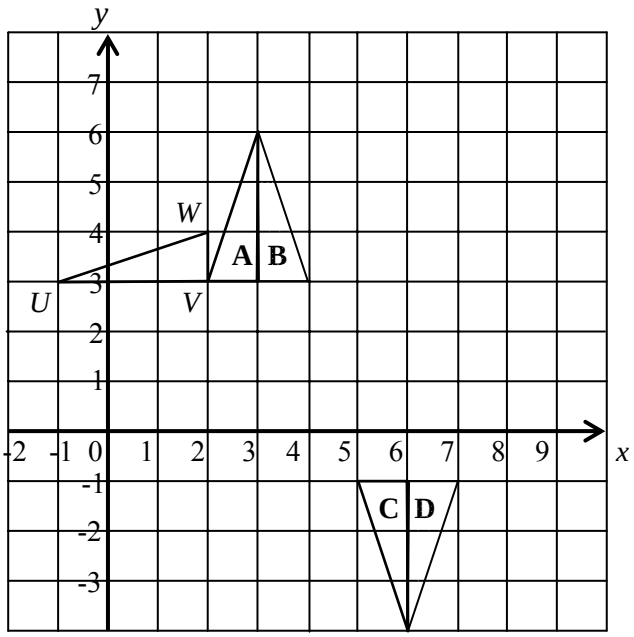
20 $\dfrac{12mn + 8n^2}{-3m - 2n} =$

A $-4n$
B $-8n$
C $4n$
D $8n$

21 Given $p - \dfrac{5}{q} = \dfrac{p}{q}$. Express p in terms of q.

A $\dfrac{p + 5}{q}$
B $\dfrac{q - 1}{5}$
C $\dfrac{5}{q - 1}$
D $5q - 1$

19 Dalam Rajah 13 , ***R*** ialah satu putaran 90^{o} lawan arah jam pada pusat $(4 , 1)$ dan ***S*** ialah satu pantulan pada garis $y = 1$.



RAJAH 13

Di antara segitiga yang bertanda **A** , **B** , **C** dan **D** , yang manakah imej bagi segitiga UVW di bawah gabungan penjelmaan ***RS*** ?

20 $\dfrac{12mn + 8n^2}{-3m - 2n} =$

A $-4n$
B $-8n$
C $4n$
D $8n$

21 Diberi $p - \dfrac{5}{q} = \dfrac{p}{q}$. Ungkapkan p dalam sebutan q.

A $\dfrac{p + 5}{q}$
B $\dfrac{q - 1}{5}$
C $\dfrac{5}{q - 1}$
D $5q - 1$

22 Given that $\frac{p+1}{2} - (2 - p) = 9$, then $p =$

A -21

B 4

C 7

D $\frac{19}{2}$

23 $3x(x-1) - (x-1)(x-2) =$

A $2x^2 - 2$

B $2x^2 + 2$

C $2x^2 - 6x + 2$

D $2x^2 + 6x - 2$

24 Simplify $\left(27k^{\frac{5}{2}} \times k^{\frac{7}{2}}\right)^{\frac{1}{3}}$

A $3k$

B $3k^2$

C $3k^6$

D $27k^2$

25 Find the value of $8^{-\frac{1}{3}} \times \left(\frac{1}{4} \div 3^{-2}\right)^{\frac{1}{2}}$

A $\frac{3}{8}$

B $\frac{3}{4}$

C $\frac{9}{8}$

D 3

22 Diberi bahawa $\frac{p+1}{2} - (2 - p) = 9$, maka $p =$

A -21

B 4

C 7

D $\frac{19}{2}$

23 $3x(x-1) - (x-1)(x-2) =$

A $2x^2 - 2$

B $2x^2 + 2$

C $2x^2 - 6x + 2$

D $2x^2 + 6x - 2$

24 Permudahkan $\left(27k^{\frac{5}{2}} \times k^{\frac{7}{2}}\right)^{\frac{1}{3}}$

A $3k$

B $3k^2$

C $3k^6$

D $27k^2$

25 Carikan nilai $8^{-\frac{1}{3}} \times \left(\frac{1}{4} \div 3^{-2}\right)^{\frac{1}{2}}$

A $\frac{3}{8}$

B $\frac{3}{4}$

C $\frac{9}{8}$

D 3

26 List all the integers x which satisfy the inequalities $\frac{1}{3}x < 2x + \frac{9}{2} \leq 11$.

A { -3, -2, -1, 0, 1, 2 }

B { -2, -1, 0, 1, 2 }

C { -2, -1, 0, 1, 2, 3 }

D { -3, -2, -1, 0, 1, 2, 3 }

27 Given that $3\begin{pmatrix}2 & -7\end{pmatrix} + M = \begin{pmatrix}9 & -6\end{pmatrix}$, then matrix M is

A $\begin{pmatrix}-3 & -15\end{pmatrix}$

B $\begin{pmatrix}3 & 15\end{pmatrix}$

C $\begin{pmatrix}-15 & 27\end{pmatrix}$

D $\begin{pmatrix}15 & -27\end{pmatrix}$

28 Given that $\begin{pmatrix}3 & -2\\1 & 4\end{pmatrix} + 3\begin{pmatrix}p & 2\\1 & 5\end{pmatrix} = \begin{pmatrix}18 & 4\\4 & 19\end{pmatrix}$. Find the value of p.

A 3

B 4

C 5

D 6

26 Senaraikan semua integer x yang memuaskan ketaksamaan $\frac{1}{3}x < 2x + \frac{9}{2} \leq 11$

A { -3, -2, -1, 0, 1, 2 }

B { -2, -1, 0, 1, 2 }

C { -2, -1, 0, 1, 2, 3 }

D { -3, -2, -1, 0, 1, 2, 3 }

27 Diberi bahawa $3\begin{pmatrix}2 & -7\end{pmatrix} + M = \begin{pmatrix}9 & -6\end{pmatrix}$, maka matriks M ialah

A $\begin{pmatrix}-3 & -15\end{pmatrix}$

B $\begin{pmatrix}3 & 15\end{pmatrix}$

C $\begin{pmatrix}-15 & 27\end{pmatrix}$

D $\begin{pmatrix}15 & -27\end{pmatrix}$

28 Diberi bahawa $\begin{pmatrix}3 & -2\\ 1 & 4\end{pmatrix} + 3\begin{pmatrix}p & 2\\ 1 & 5\end{pmatrix} = \begin{pmatrix}18 & 4\\ 4 & 19\end{pmatrix}$. Carikan nilai bagi p.

A 3

B 4

C 5

D 6

29 Diagram 14 shows a sketch of graph of a function**.**

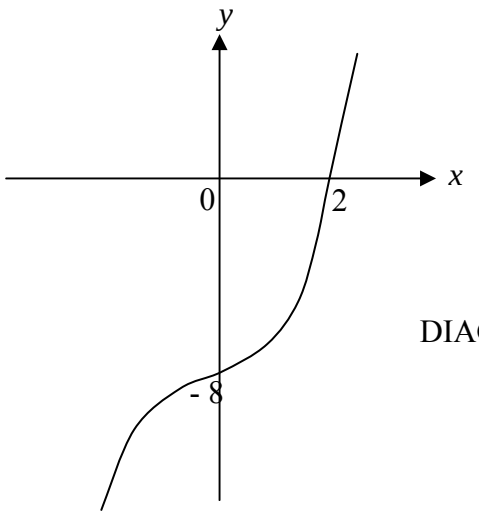


DIAGRAM 14

Which one of the following is the equation of the function.

A $y = x^3 + 2$

B $y = -x^3 + 2$

C $y = -x^3 - 8$

D $y = x^3 - 8$

30 Diagram 15 shows the rectangular shape of a durian orchard. Given the length of *PS* is 45 metres and the total area of the orchard is 0.036 km^2 .

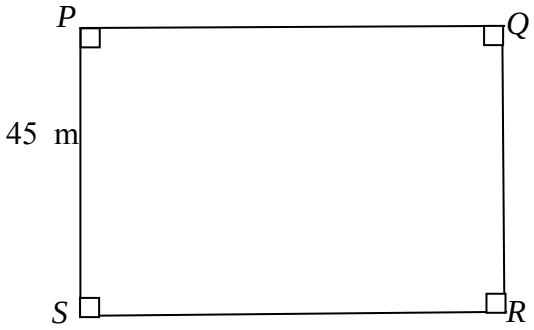


DIAGRAM 15

Calculate the length, in meter, of *PQ*.

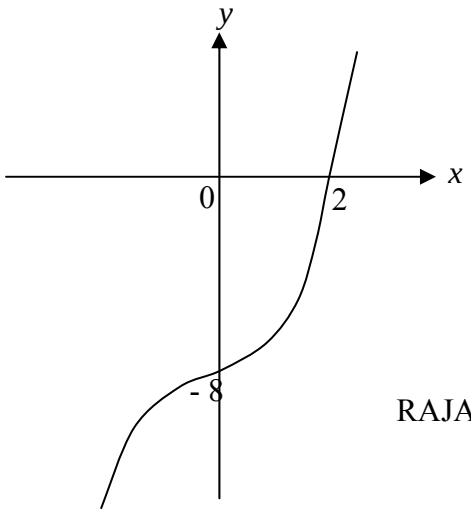
A 8.0×10^2

B 8.0×10^1

C 8.0×10^{-1}

D 8.0×10^{-2}

29 Rajah 14 menunjukkan lakaran graf suatu fungsi.



RAJAH 14

Antara berikut, persamaan yang manakah mewakili fungsi tersebut.

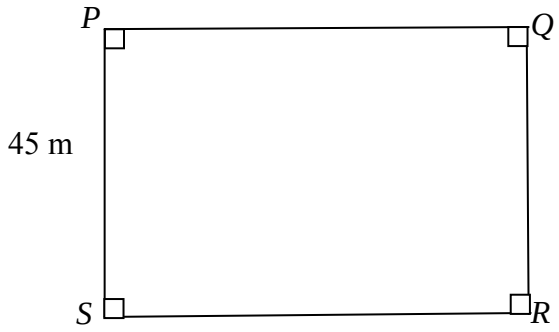
A $y = x^3 + 2$

B $y = -x^3 + 2$

C $y = -x^3 - 8$

D $y = x^3 - 8$

30 Rajah 15 menunjukkan sebuah dusun durian berbentuk segiempat tepat. Diberi panjang *PS* ialah 45 meter dan jumlah keluasan dusun tersebut ialah $0.036\ \text{km}^2$.



RAJAH 15

Kirakan panjang, dalam meter, bagi *PQ*.

A 8.0×10^2

B 8.0×10^1

C 8.0×10^{-1}

D 8.0×10^{-2}

31 Diagram 16 shows a straight line *MN*.

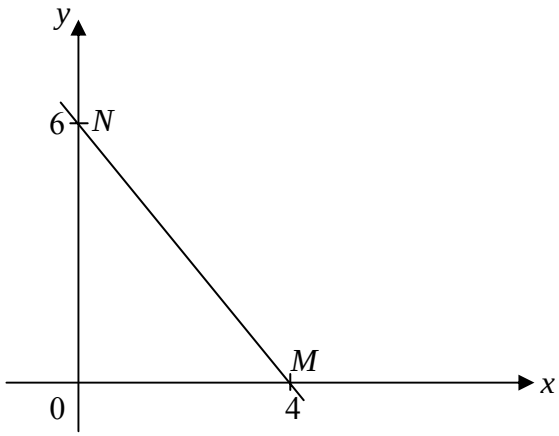


DIAGRAM 16

Find the equation of *MN*.

A $y = \frac{3}{2}x + 6$

B $y = \frac{2}{3}x + 6$

C $y = -\frac{3}{2}x + 6$

D $y = -\frac{2}{3}x + 6$

32 Diagram 17 shows a Venn diagram with a universal set ξ.

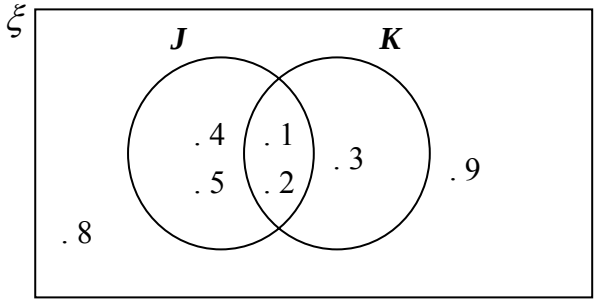
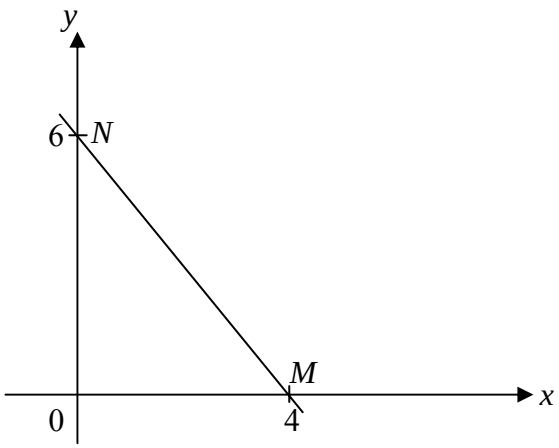


DIAGRAM 17

The elements for set $(J \cap K)'$ are

A { 1 , 2 }
B { 8 , 9 }
C { 3 , 4 , 5 }
D { 3 , 4 , 5 , 8 , 9 }

31 Rajah 16 menunjukkan garis lurus *MN*.



RAJAH 16

Cari persamaan bagi garis lurus *MN*.

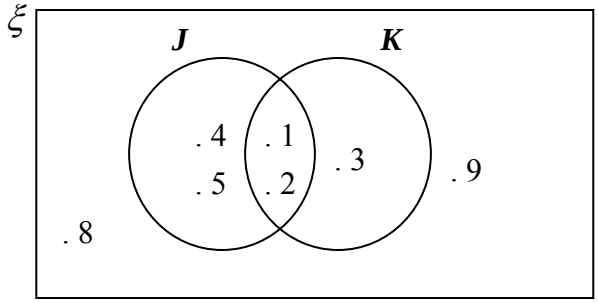
A $y = \frac{3}{2}x + 6$

B $y = \frac{2}{3}x + 6$

C $y = -\frac{3}{2}x + 6$

D $y = -\frac{2}{3}x + 6$

32 Rajah 17 menunjukkan gambarajah Venn dengan ξ ialah set semesta.



RAJAH 17

Unsur-unsur dalam set $(J \cap K)'$ ialah

A { 1 , 2 }
B { 8 , 9 }
C { 3 , 4 , 5 }
D { 3 , 4 , 5 , 8 , 9 }

33 Diagram 18 shows a Venn diagram with $\xi = B \cup F \cup T$. Sets *B*, *F* and *T* represent the number of teachers in a school who play badminton, *B*, football, *F*, and tennis, *T*. Given the total number of teachers in that school is 35 and teachers who do not play football is 15.

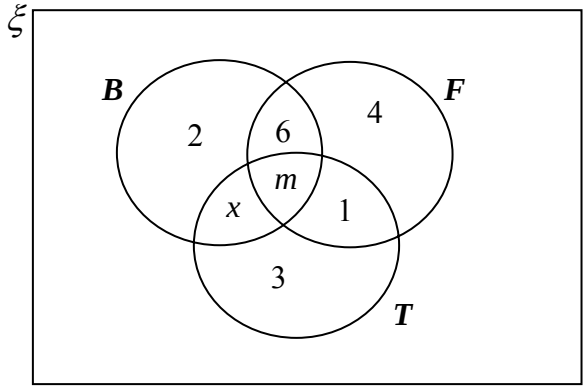


DIAGRAM 18

How many teachers play badminton and tennis?

A 31
B 19
C 10
D 9

34 Diagram 19 shows a Venn diagram with universal set ξ, set *E*, set *F* and set *G*.

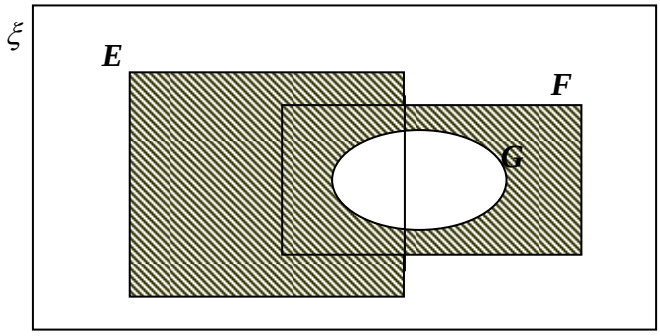
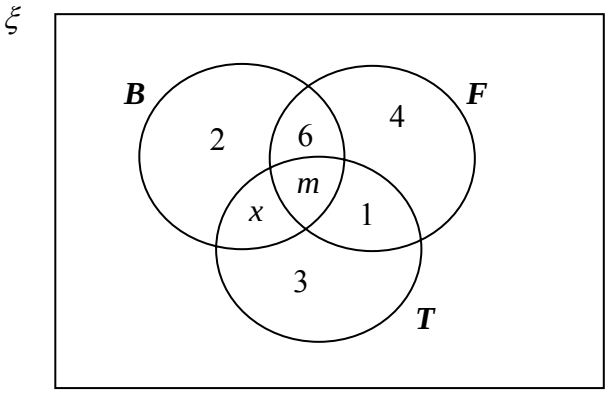


DIAGRAM 19

The shaded region represents the set

A $E \cap G' \cup F$
B $E \cup (F \cap G')$
C $(E \cup F) \cup G'$
D $(E \cup F) \cap G'$

33 Rajah 18 menunjukkan gambarajah Venn dengan $\xi = B \cup F \cup T$. Set *B*, *F* dan *T* mewakili bilangan guru di sebuah sekolah yang bermain badminton, *B*, bola sepak, *F*, dan tenis, *T*. Diberi jumlah guru di sekolah itu ialah 35 orang dan guru yang tidak bermain bola sepak ialah 15 orang.

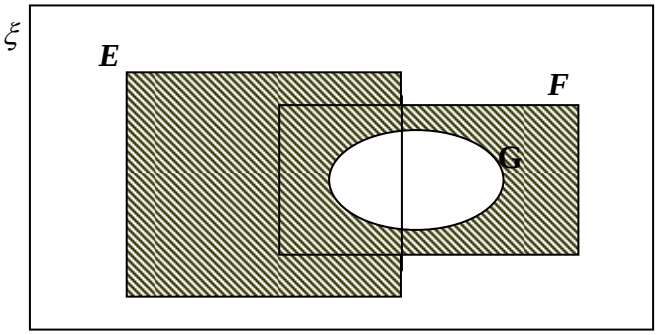


RAJAH 18

Berapakah bilangan guru yang bermain badminton dan tenis?

A 31
B 19
C 10
D 9

34 Rajah 19 menunjukkan gambarajah Venn dengan set semesta, ξ, set *E*, set *F* dan set *G*.



RAJAH 19

Rantau berlorek mewakili set

A $E \cap G' \cup F$
B $E \cup (F \cap G')$
C $(E \cup F) \cup G'$
D $(E \cup F) \cap G'$

35 Given that R varies directly as square of y and $y = 2x - 1$.
If $R = 245$ when $x = 4$, express R in terms of x.

A $R = 3(2x - 1)^2$

B $R = 5(2x - 1)^2$

C $R = 7(2x - 1)^2$

D $R = 35(2x - 1)^2$

36 Table 1 shows the relation between the variables r, s and t.

r	s	t
4	3	1
m	9	12

TABLE 1

Given that s varies directly as t and inversely as square of r.
Calculate the possible value of m.

A 8
B 32
C 48
D 64

37 A packet contains seeds which produce flowers with one of three colours, red, yellow and purple. 20 % will produce red flowers, 30 % of them will produce yellow flowers and the remainder will produce purple flowers. One seed is selected at random. Find the probability that it will produce either a red or a purple flower.

A 0.8
B 0.7
C 0.5
D 0.1

35 Diberi bahawa R berubah secara langsung dengan kuasa dua y dan $y = 2x - 1$. Jika $R = 245$ apabila $x = 4$, nyatakan R dalam sebutan x.

A $R = 3(2x - 1)^2$

B $R = 5(2x - 1)^2$

C $R = 7(2x - 1)^2$

D $R = 35(2x - 1)^2$

36 Jadual 1 menunjukkan hubungan antara pembolehubah r, s dan t.

r	s	t
4	3	1
m	9	12

JADUAL 1

Diberi bahawa s berubah secara langsung dengan t dan berubah secara songsang dengan kuasa dua r. Hitungkan nilai m yang mungkin.

A 8
B 32
C 48
D 64

37 Sebuah kotak mengandungi biji benih pokok–pokok bunga yang akan mengeluarkan bunga berwarna merah, kuning atau ungu. 20 % daripada biji benih itu akan mengeluarkan bunga berwarna merah, 30 % akan mengeluarkan bunga berwarna kuning dan selebihnya akan mengeluarkan bunga berwarna ungu. Sebiji benih dipilih secara rawak. Cari kebarangkalian ia akan mengeluarkan bunga berwarna merah atau ungu.

A 0.8
B 0.7
C 0.5
D 0.1

38 A group of students consists of 10 boys and 15 girls. 7 of the boys and 3 of the girls are wearing spectacles. If a student is choosen at random from the group, state the probablity that the student does not wear spectacle.

A $\frac{1}{5}$

B $\frac{2}{5}$

C $\frac{3}{5}$

D $\frac{2}{3}$

39 Table 2 shows the score and the frequency obtained by a group of students in a game.

Score	1	2	3	4	5	6
Frequency	4	5	2	x	3	3

TABLE 2

If the median is 3, find the maximum value of x.

A 2
B 3
C 4
D 5

38 Satu kumpulan pelajar terdiri daripada 10 orang pelajar lelaki dan 15 orang pelajar perempuan. 7 orang daripada pelajar lelaki dan 3 orang daripada pelajar perempuan memakai cermin mata. Seorang pelajar dipilih secara rawak daripada kumpulan itu.
Carikan kebarangkalian bahawa pelajar yang dipilih itu tidak memakai cermin mata.

A $\frac{1}{5}$

B $\frac{2}{5}$

C $\frac{3}{5}$

D $\frac{2}{3}$

39 Jadual 2 menunjukkan skor dan kekerapan yang diperoleh oleh sekumpulan pelajar dalam satu permainan.

Skor	1	2	3	4	5	6
Kekerapan	4	5	2	x	3	3

JADUAL 2

Jika median ialah 3, carikan nilai maksimum bagi x.

A 2
B 3
C 4
D 5

40 The ogive shows the number of marbles owned by 20 children in their pockets. 65% of the children have more than x marbles.

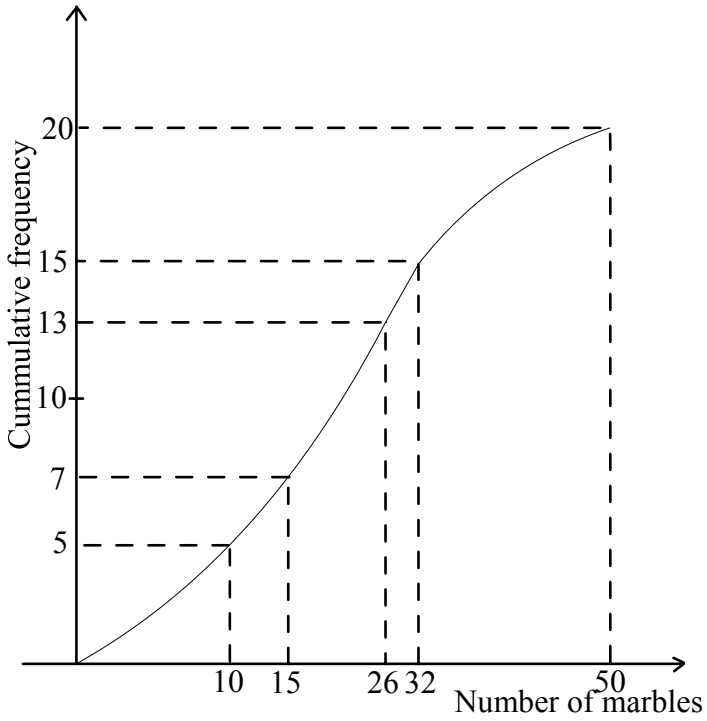


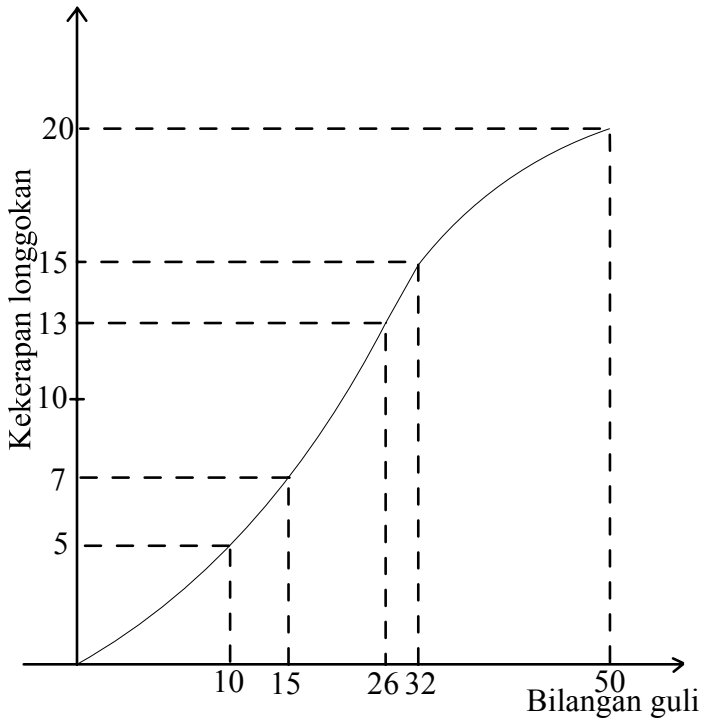
TABLE 3

Find the value of x.

A 15
B 24
C 26
D 32

END OF QUESTION PAPER

40 Ogif menunjukkan bilangan guli yang dipunyai oleh 20 kanak-kanak di dalam poket. 65% kanak-kanak ini mempunyai lebih dari *x* biji guli.



JADUAL 3

Carikan nilai *x*.

A 15
B 24
C 26
D 32

KERTAS SOALAN TAMAT