TheMind's Q'Bank - A non-profit community initiative by TheMind Association www.themindassociation.org

MAKTAB RENDAH SAINS MARA

PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA 2004

MATEMATIK

Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

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 2 to 3.*
8. *A booklet of four-figure mathematical tables is provided.*
9. *You may use a non-programmable scientific calculator.*

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

8 Midpoint

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

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

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

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

12 Pythagoras Theorem

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

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

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

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SHAPE AND SPACE

1 Area of trapezium = $\frac{1}{2}$ × sum of parallel sides × 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 × 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 = $\frac{1}{3}$ × base area × height

11 Sum of interior angles of a polygon = $(n-2) \times 180^\circ$

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 × area of object

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Answer **all** *questions*.

1 Round off 0.0028059 correct to four significant figures.

A 0.0028

B 0.002805

C 0.002806

D 0.003

2 $\dfrac{(1.25\times10^{-2})^2}{0.05\times(3-0.26)} =$

A 1.14 x 10

B 1.14 x 10^{-3}

C 8.56 x 10

D 8.56 x 10^{-3}

3 An aeroplane flies 2 000 km from *X* to *Z* through *Y* with an average speed of 660 km h^{-1}. If the aeroplane takes 1 hour 40 minutes to fly over *Y*, express, in standard form, the time, in seconds, taken by the aeroplane to complete its journey.

A 4.91 x 10^3

B 5.87 x 10^3

C 8.18 x 10

D 9.78 x 10^3

4 Express 2241_5 as a number to the base eight .

A 105_8

B 321_8

C 501_8

D 4301_8

5 $1101_2 + M = 10110_2$, therefore, *M* stated as a number to the base two is

A 1001_2

B 1011_2

C 11011_2

D 11111_2

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6 In Diagram 1, $PQ = PR$.

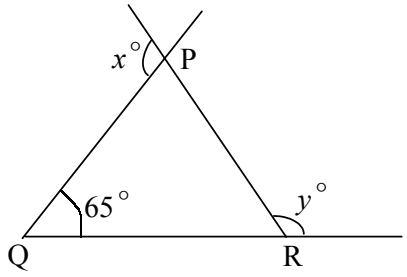

DIAGRAM 1

The value of $x + y$ is

A 165

B 195

C 245

D 255

7 In Diagram 2, $ABCD$ is a rhombus . EDC and BCH are straight lines.

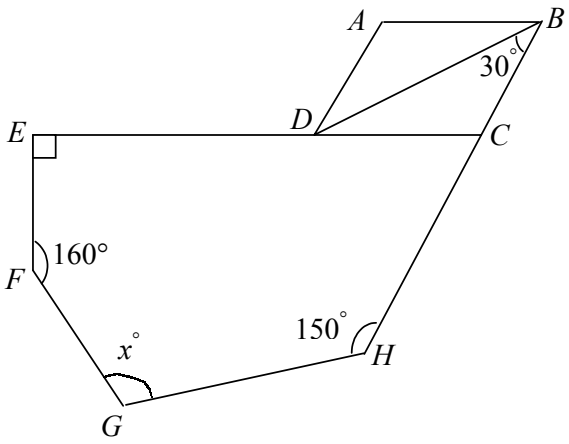

DIAGRAM 2

The value of x =

A 60

B 80

C 100

D 120

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8 In Diagram 3, *ACD* is a common tangent to two circles centred at *P* and *O* respectively. *DE* is a tangent to the circle with centre *O*. *PBO* and *COF* are straight lines.

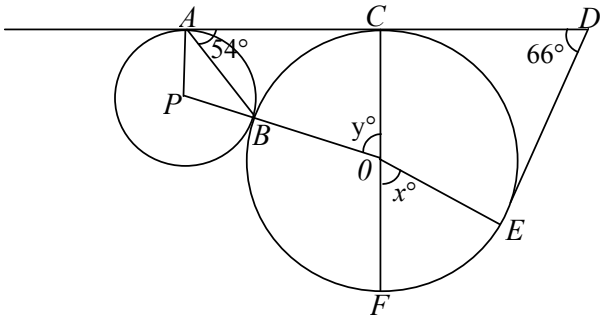

DIAGRAM 3

Calculate the value of $x + y$.

A 174

B 138

C 132

D 120

9 Diagram 4, shows a wall and a tree separated by a river. If the angle of depression of point *A* from the top of the tree ,*V*, is 40°,

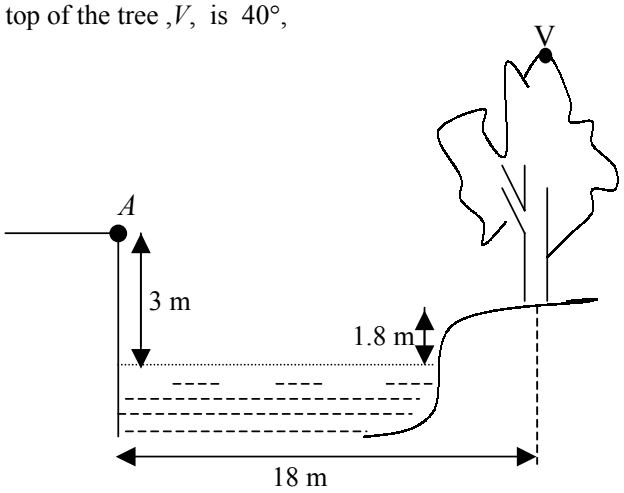

DIAGRAM 4

Calculate the height of the tree in meters.

A 15.10

B 16.30

C 21.45

D 22.65

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10 In Diagram 5, PQR is a straight line and $\sin \angle SRQ = \frac{8}{17}$.

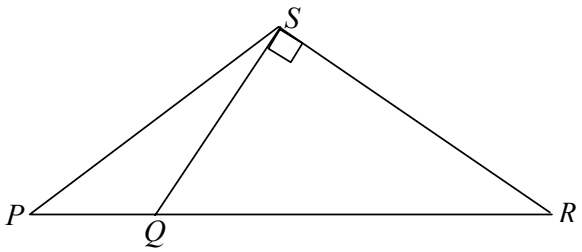

DIAGRAM 5

Find the value of $\cos \angle PQS$.

A $\frac{15}{17}$

B $-\frac{15}{17}$

C $\frac{8}{17}$

D $-\frac{8}{17}$

11. Diagram 6 shows part of the graphs $y = \sin x$ and $y = \cos x, 0^\circ \le x \le 360^\circ$.

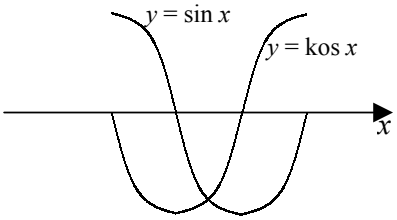

DIAGRAM 6

If $\sin x = \cos x$, then the possible value of x is

A 45^o

B 135^o

C 225^o

D 315^o

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12. Diagram 7 shows a cuboid with a rectangular base *SPWZ* on a horizontal plane. *U* is the midpoint of *SR*.

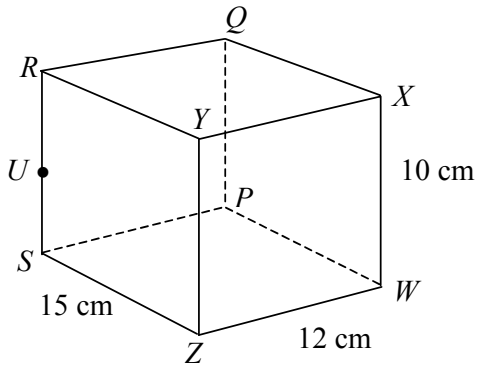

DIAGRAM 7

Calculate the angle between line *XU* and the *WXYZ*.

A $45^\circ 21'$

B $49^\circ 5'$

C $52^\circ 48'$

D $75^\circ 25'$

13 In Diagram 8, *P*, *Q* and *R* are points on a horizontal plane with *PQ* = *PR*. *P* is due north of *Q* and the bearing of *R* from *P* is $126°$.

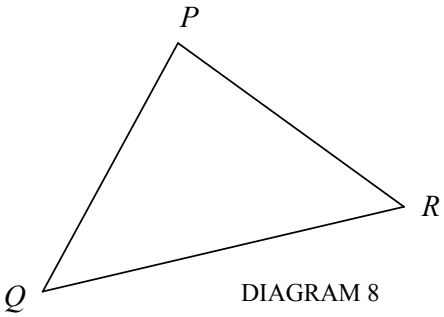

DIAGRAM 8

The bearing of *Q* from *R* is

A 063°

B 243°

C 270°

D 306°

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14 In Diagram 9, O is the centre of the earth, U is the North Pole and S is the South Pole . KH is the diameter of a parallel of latitude . Given $\angle KOH = 110°$ and the longitude of UKS is $40°$ W.

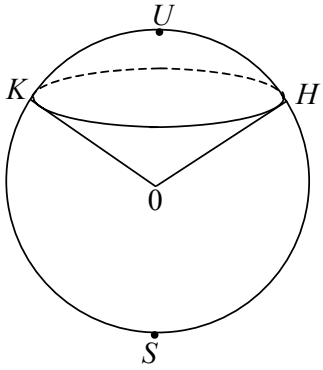

DIAGRAM 9

Find the position of H.

A $(35° N, 140° E)$

B $(55° N, 140° E)$

C $(35° N, 140° W)$

D $(35° N, 40° E)$

15 Diagram 10 shows two polygons drawn on a square grid.

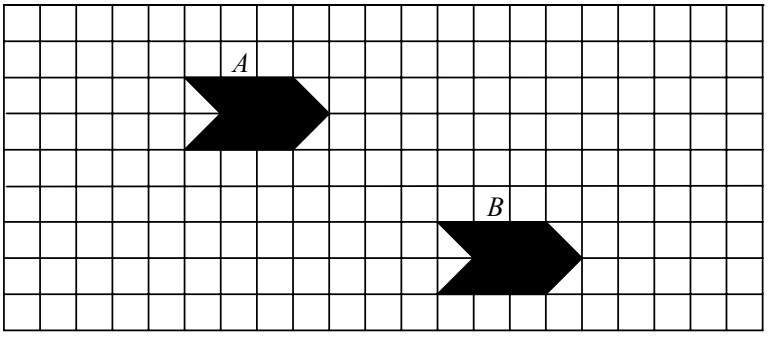

DIAGRAM 10

The translation that maps object B to image A is

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

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

C $\begin{pmatrix} -7 \\ 4 \end{pmatrix}$

D $\begin{pmatrix} 7 \\ -4 \end{pmatrix}$

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16 Under a reflection about the axis $y = x - 1$, the image of point $(2, -5)$ is

A $(2 , -3)$

B $(4 , -1)$

C $(10 , 5)$

D $(6 , 1)$

17 In Diagram 11, point B is the image of point A under a certain transformation.

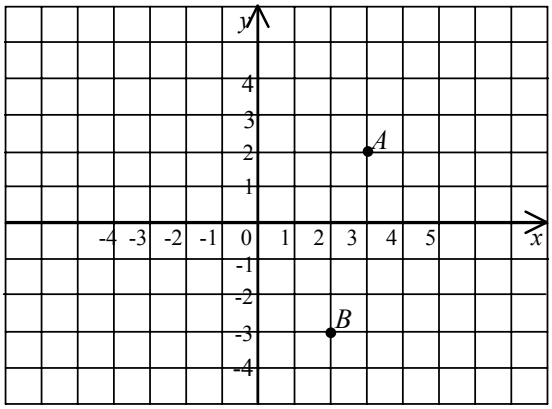

DIAGRAM 11

Which of the statements below, describes the transformation that maps point A to point B ?

A Translation $\begin{pmatrix} 1 \\ 5 \end{pmatrix}$.

B Reflection about the line $y = -x + 2$.

C Rotation through 90° anticlockwise about the origin.

D Rotation through 90° clockwise about the origin.

18 $e^2 + 4f - 4e - ef =$

A $(e - 2)(e - 2f)$

B $(e - 2f)(e + 2)$

C $(e - f)(e - 4)$

D $(e + f)(e - 4)$

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19 Given that $4x + 3y = 11$ and $2x + 3y = 7$, find the value of y.

A -2

B -1

C 1

D 2

20 $\frac{2+n}{m} - \frac{n^2-4}{2m} =$

A $\frac{4+n-n^2}{m}$

B $\frac{(4-n)(n+2)}{2m}$

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

D $\frac{n(2-n)}{2m}$

21 Given that $2(5 - \frac{1}{3}u) = 3(2u + 5)$, then $u =$

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

B $\frac{3}{4}$

C $-\frac{1}{4}$

D $-\frac{7}{4}$

22 Given that $y - x = \frac{3y-9}{x}$. Express y in terms of x in its simplest form.

A $y = \frac{x^2-9}{x-3}$

B $y = \frac{x^2-9}{x+3}$

C $y = x - 3$

D $y = x + 3$

23 Simplify $\left(4e^3h^4\right)^2 \div (2e^{-2}h^3)$

A $2\,e^5h^5$

B $2\,e^8h^5$

C $8\,e^4h^5$

D $8\,e^8h^5$

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24 Simplify $\dfrac{7h^3 \times h^{-4} \times \left(3h^{-3}k^2\right)^2}{21(hk)}$

A $h^{-6}k^3$

B $3h^{-8}k^3$

C h^8k^3

D $3h^{-6}k^3$

25 All the integers y that satisfy the inequalities $10-5y \geq -10$ and $\dfrac{y}{2}-7>-8$ are

A –2, –1, 0, 1, 2, 3, 4

B –2, –1, 0, 1, 2, 3

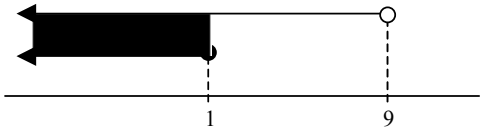
C –1, 0, 1, 2, 3, 4

D –1, 0, 1, 2, 3

26. The solution of the inequalities $3(w-5)<w+3$ and $3-2w \leq 1$ on the number line is

A

B



C

D

27 Given that $\begin{pmatrix} 4 & -2 \\ m & -3 \end{pmatrix} - n\begin{pmatrix} 3 & -1 \\ -2 & 0 \end{pmatrix} = \begin{pmatrix} 1 & -1 \\ 5 & -3 \end{pmatrix}$, find the values of m and n.

A $m = -3$, $n = 1$

B $m = 3$, $n = 1$

C $m = 7$, $n = 1$

D $m = 7$, $n = -1$

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28 Given that M = $\begin{pmatrix} 2 & 0 \\ 1 & 2 \end{pmatrix}$ and N = $\begin{pmatrix} 2 & 0 \\ -1 & 2 \end{pmatrix}$, find the value of x that satisfies the equation $2M + \begin{pmatrix} -2 & 0 \\ -3 & x \end{pmatrix} = N$.

A 0

B –2

C 2

D 6

29 $\begin{pmatrix} -5 \\ 1 \end{pmatrix}(4 \quad -3) =$

A (–23)

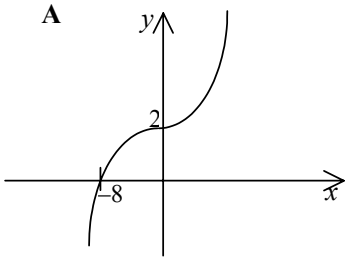
B (–20 –3)

C $\begin{pmatrix} -20 \\ -3 \end{pmatrix}$

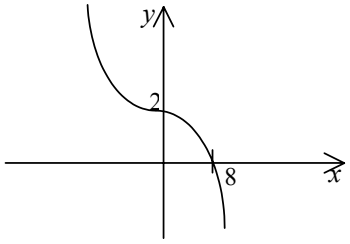
D $\begin{pmatrix} -20 & 15 \\ 4 & -3 \end{pmatrix}$

30 Which of the following represents the graph of $y = -x^3 + 8$?

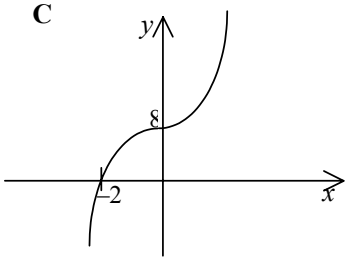
A



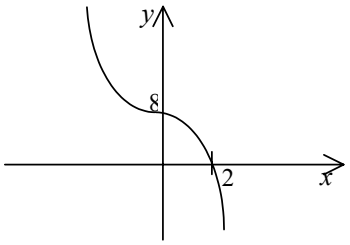
B



C



D



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31 In Diagram 12 , PQ and RS are parallel lines.

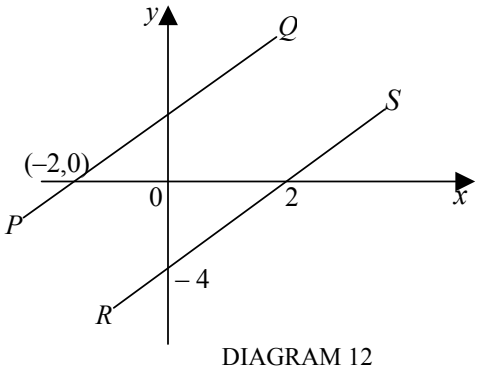

DIAGRAM 12

The equation of the straight line PQ is

A $y = 2x + 4$

B $y = 2x - 4$

C $y = \frac{1}{2}x + 4$

D $y = \frac{1}{2}x - 4$

32 Given $\xi = \{x : 12 < x \leq 25 , x \text{ is an integer}\}$ and $A = \{ x : x \text{ is the number where the sum of its digits is a prime number } \}$.
Find n(A).

A 4

B 5

C 6

D 7

33 The Venn diagram in Diagram 13 shows all the elements in sets P, Q , R and the universal set ξ.

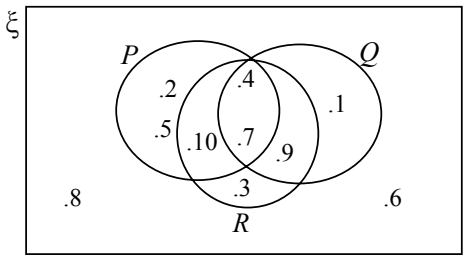

DIAGRAM 13

Find the set $P \cap Q' \cap R$.

A {10}

B {2,5}

C {4,7,10}

D {3,4,7,9,10}

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34 Given that
$\xi = \{ x : 10 \le x \le 25, x \text{ is an integer} \}$,
P = $\{ x : x$ is a number where the sum of its digits is divisible by 4$\}$,
Q = $\{ x : x$ is a perfect square $\}$.

Find $n(P \cup Q')$.

A 11

B 14

C 16

D 17

35. Given that R is directly proportional to the square root of j and $R = 21$ when $j = 49$, express R in terms of j.

A $R = -\frac{1}{3}\sqrt{j}$

B $R = -3\sqrt{j}$

C $R = \frac{1}{3}\sqrt{j}$

D $R = 3\sqrt{j}$

36. Given that m is directly proportional to (g + 2) and is inversely proportional to h^2. When g = 1, h = 3 and m = 12, what is the value of g when m = 20 and h = 6?

A 18

B 20

C 25

D 36

37 The probability of Siti going to play bowling is $\frac{3}{5}$ while the probability she is going to play tennis is $\frac{2}{7}$. Find the probability that at a certain time, she is going to play either bowling or tennis.

A $\frac{5}{7}$

B $\frac{6}{35}$

C $\frac{5}{12}$

D $\frac{31}{35}$

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38 There are 5 red apples and 3 green apples in a basket. If 2 apples are taken at random from t the basket, find the probability of getting 2 green apples.

A $\frac{3}{32}$

B $\frac{3}{28}$

C $\frac{1}{4}$

D $\frac{9}{64}$

39 Table 1 is obtained from the score and the number of tries done by a player in a game.

Score (x)	1	2	3	4	5
The number of tries × score (fx)	9	20	36	44	40

TABLE 1

The mean score is

A 2.98

B 3.58

C 29.8

D 35.53

40 In Diagram 14, the histogram shows the time spent by a group of students to surf the internet on a certain day.

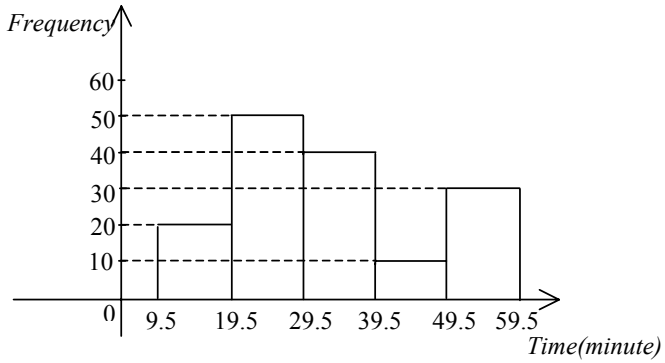

DIAGRAM 14

The percentage of the number of students who surfed the internet for at least 40 minutes is

A 26.67%

B 53.33 %

C 73.33 %

D 80 %

END OF QUESTION PAPER

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SIJIL PELAJARAN MALAYSIA 2004

MATEMATIK

Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

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 menukarkan jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.

6. Rajah yang mengiringi soalan tidak dilukiskan mengikut skala kecuali dinyatakan.

7. Satu senarai rumus disediakan di halaman 2 dan halaman 3.

8. Sebuah buku sifir matematik empat angka disediakan.

9. Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.

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

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

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BENTUK DAN RUANG

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

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

3 Luas bulatan $= \pi j^2$

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

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

6 Isipadu prisma tegak = luas keratan rentas $\times$ 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 $= \frac{1}{3} \times$ luas tapak $\times$ tinggi

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

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

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

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

15 Luas imej $= k^2 \times$ luas objek

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Jawab **semua** *soalan.*

1 Bundarkan 0.0028059 betul kepada empat angka bererti.

A 0.0028

B 0.002805

C 0.002806

D 0.003

2 $\dfrac{(1.25\times10^{-2})^2}{0.05\times(3-0.26)} =$

A 1.14 x 10

B 1.14 x 10^{-3}

C 8.56 x 10

D 8.56 x 10^{-3}

3 Sebuah kapal terbang bergerak sejauh 2 000 km dari *X* ke *Z* melalui *Y* dengan purata laju 660 km j^{-1}. Jika kapal terbang tersebut mengambil masa 1 jam 40 minit untuk melintasi *Y*, ungkapkan dalam bentuk piawai, masa, dalam saat, yang diambil oleh kapal terbang itu untuk meneruskan perjalanan ke *Z*.

A 4.91 x 10^3

B 5.87 x 10^3

C 8.18 x 10

D 9.78 x 10^3

4 Ungkapkan 2241_5 sebagai nombor dalam asas lapan .

A 105_8

B 321_8

C 501_8

D 4301_8

5 $1101_2 + M = 10110_2$, maka *M* sebagai nombor dalam asas dua ialah

A 1001_2

B 1011_2

C 11011_2

D 11111_2

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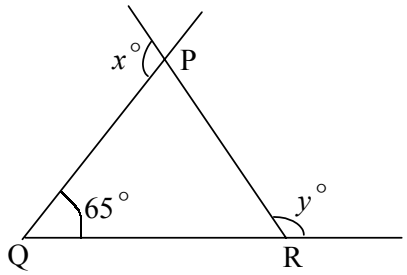
6 Dalam Rajah 1, $PQ = PR$.



RAJAH 1

Nilai $x + y =$

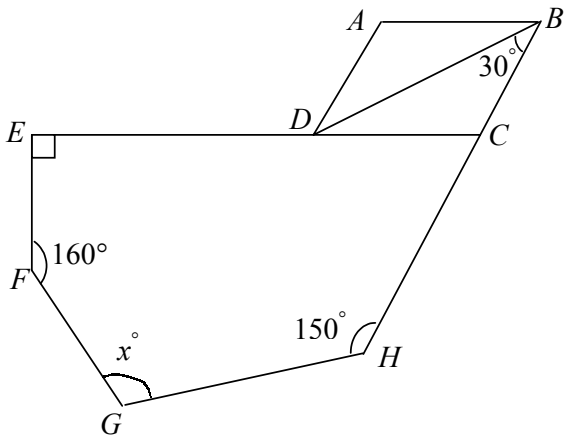
A 165

B 195

C 245

D 255

7 Dalam Rajah 2, *ABCD* ialah sebuah rombus. *EDC* dan *BCH* adalah garis lurus.



RAJAH 2

Nilai x ialah

A 60

B 80

C 100

D 120

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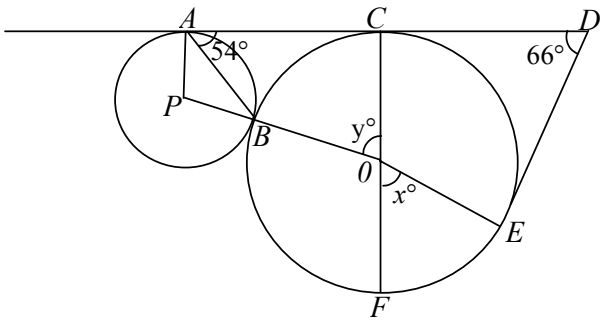
8 Dalam Rajah 3, *ACD* ialah tangen sepunya kepada bulatan yang masing-masing berpusat *P* dan *O*. *DE* ialah tangen kepada bulatan berpusat *O*. *PBO* dan *COF* ialah garis lurus.



RAJAH 3

Hitungkan nilai $x + y$.

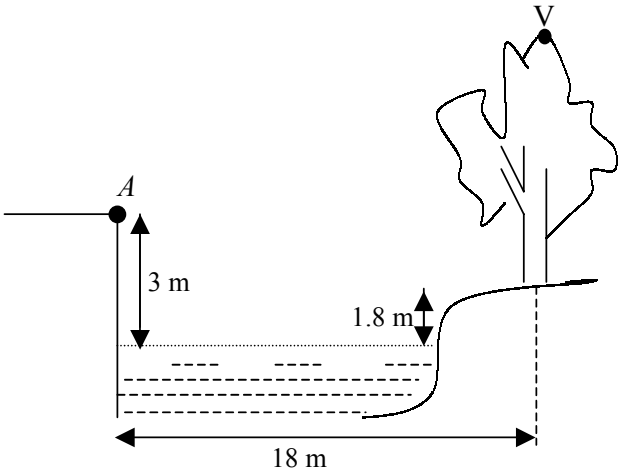
A 174

B 138

C 132

D 120

9 Rajah 4 menunjukkan sebuah tembok dan sebatang pokok dipisahkan oleh sebatang sungai.



RAJAH 4

Jika sudut tunduk *A* dari hujung pokok *V* ialah 40° , hitung tinggi pokok itu.

A 15.10

B 16.30

C 21.45

D 22.65

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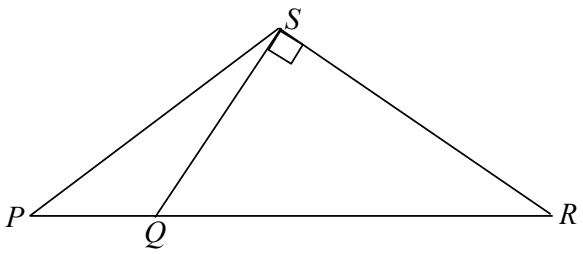
10 Dalam Rajah 5, PQR ialah garislurus dan $\sin \angle SRQ = \frac{8}{17}$.



RAJAH 5

Tentukan nilai kos $\angle PQS$.

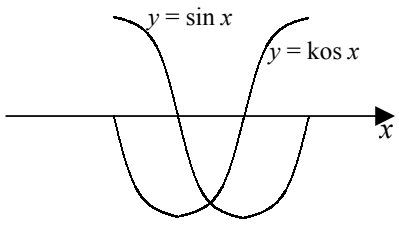
A $\frac{15}{17}$

B $-\frac{15}{17}$

C $\frac{8}{17}$

D $-\frac{8}{17}$

11 Rajah 6 menunjukkan sebahagian daripada graf $y = \sin x$ dan $y = \kos x$ bagi $0^\circ \le x \le 360^\circ$



RAJAH 6

Jika $\sin x = \kos x$, maka nilai x yang mungkin ialah

A 45^o

B 135^o

C 225^o

D 315^o

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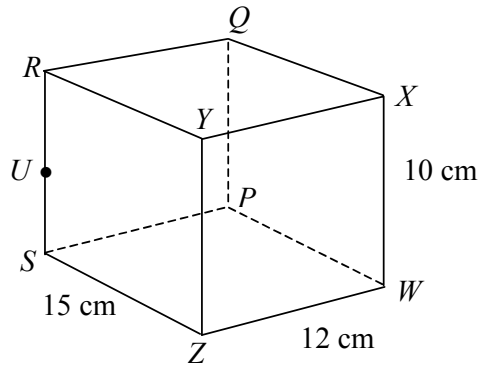
12 Rajah 7 menunjukkan sebuah kuboid dengan tapak mengufuk *SPWZ* yang berbentuk segiempat tepat. *U* ialah titik tengah bagi sisi *SR*.



RAJAH 7

Hitungkan sudut di antara garis *XU* dengan satah *WXYZ*.

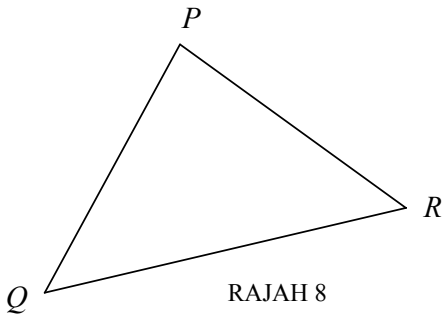
A $45^\circ\ 21'$

B $49^\circ\ 5'$

C $52^\circ\ 48'$

D $75^\circ\ 25'$

13 Dalam Rajah 8, titik-titik *P*, *Q* dan *R* terletak pada satu satah ufuk dan *PQ* = *PR*. *P* terletak ke utara *Q* dan bearing *R* dari *P* ialah $126°$.



RAJAH 8

Bearing *Q* dari *R* ialah

A 063°

B 243°

C 270°

D 306°

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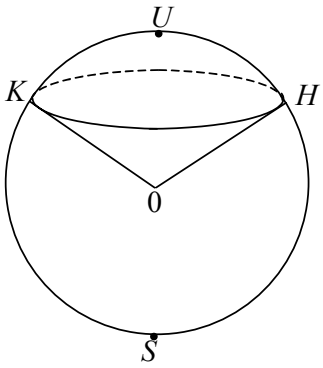
14 Dalam Rajah 9, O ialah pusat bumi, U ialah Kutub Utara dan S ialah Kutub Selatan. KH ialah diameter selarian latitud . Diberi $\angle KOH = 110°$ dan longitud bagi UKS ialah $40°$ B .



RAJAH 9

Cari kedudukan titik H .

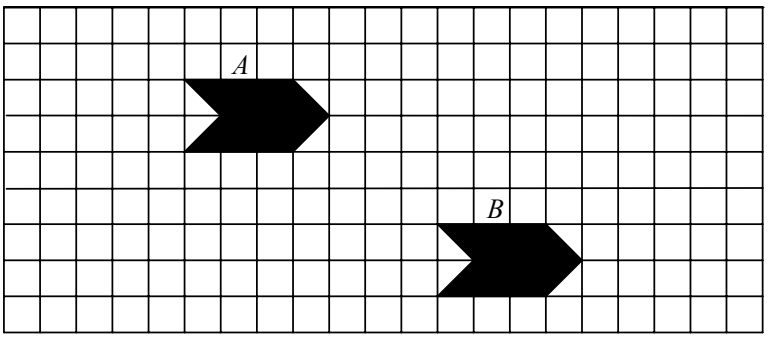
A ($35°$ U , $140°$ T)

B ($55°$ U , $140°$ T)

C ($35°$ U , $140°$ B)

D ($35°$ U , $40°$ T)

15 Rajah 10 menunjukkan dua poligon yang dilukis pada grid segiempat sama.



RAJAH 10

Nyatakan Translasi yang memetakan objek B kepada imej

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

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

C $\begin{pmatrix} -7 \\ 4 \end{pmatrix}$

D $\begin{pmatrix} 7 \\ -4 \end{pmatrix}$

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16 Imej bagi titik (2, 5) di bawah pantulan pada paksi $y = x - 1$ ialah

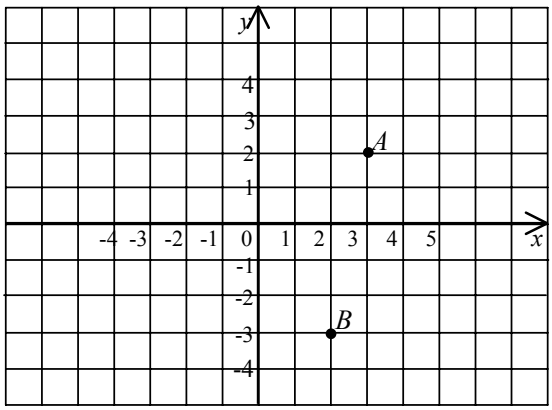
A (2 , -3)

B (4 , -1)

C (10 , 5)

D (6 , 1)

17 Dalam Rajah 11, titik *B* ialah imej bagi titik *A* di bawah suatu penjelmaan.



RAJAH 11

Yang manakah di antara pernyataan di bawah, menjelaskan penjelmaan yang memetakan titik *A* ke titik *B* ?

A Translasi $\begin{pmatrix} 1 \\ 5 \end{pmatrix}$.

B Pantulan pada garis $y = -x + 2$.

C Putaran melalui 90° lawan arah jam pada asalan.

D Putaran melalui 90° ikut arah jam pada asalan.

18 $e^2 + 4f - 4e - ef =$

A $(e - 2)(e - 2f)$

B $(e - 2f)(e + 2)$

C $(e - f)(e - 4)$

D $(e + f)(e - 4)$

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19 Diberi $4x + 3y = 11$ dan $2x + 3y = 7$. Cari nilai y

A -2

B -1

C 1

D 2

20 $\frac{2+n}{m} - \frac{n^2-4}{2m} =$

A $\frac{4+n-n^2}{m}$

B $\frac{(4-n)(n+2)}{2m}$

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

D $\frac{n(2-n)}{2m}$

21 Diberi $2(5-\frac{1}{3}u) = 3(2u+5)$, maka $u =$

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

B $\frac{3}{4}$

C $-\frac{1}{4}$

D $-\frac{7}{4}$

22 Diberi $y - x = \frac{3y-9}{x}$. Ungkapkan y dalam sebutan x dalam bentuk teringkas.

A $y = \frac{x^2-9}{x-3}$

B $y = \frac{x^2-9}{x+3}$

C $y = x - 3$

D $y = x + 3$

23 Ringkaskan $\left(4e^3h^4\right)^2 \div (2e^{-2}h^3)$

A $2\,e^5h^5$

B $2\,e^8h^5$

C $8\,e^4h^5$

D $8\,e^8h^5$

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24 Permudahkan $\dfrac{7h^3 \times h^{-4} \times \left(3h^{-3}k^2\right)^2}{21(hk)}$

A $h^{-6}k^3$

B $3h^{-8}k^3$

C h^8k^3

D $3h^{-6}k^3$

25 Semua integer y yang memuaskan ketaksamaan $10 - 5y \geq -10$ dan $\dfrac{y}{2} - 7 > -8$ ialah

A $-2, -1, 0, 1, 2, 3, 4$

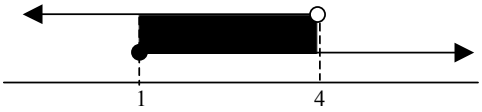
B $-2, -1, 0, 1, 2, 3$

C $-1, 0, 1, 2, 3, 4$

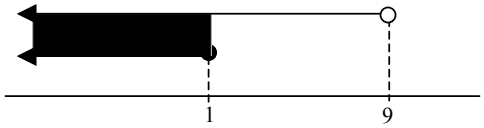
D $-1, 0, 1, 2, 3$

26 Penyelesaian bagi kedua-dua ketaksamaan $3(w-5) < w+3$ dan $3 - 2w \leq 1$ pada garis nombor ialah

A



B



C

D

27 Diberi bahawa $\begin{pmatrix} 4 & -2 \\ m & -3 \end{pmatrix} - n\begin{pmatrix} 3 & -1 \\ -2 & 0 \end{pmatrix} = \begin{pmatrix} 1 & -1 \\ 5 & -3 \end{pmatrix}$, carikan nilai m dan nilai n.

A $m = -3$, $n = 1$

B $m = 3$, $n = 1$

C $m = 7$, $n = 1$

D $m = 7$, $n = -1$

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28 Diberi matriks $M=\begin{pmatrix}2 & 0\\ 1 & 2\end{pmatrix}$ dan matriks $N=\begin{pmatrix}2 & 0\\ -1 & 2\end{pmatrix}$, cari nilai x yang memuaskan persamaan berikut $2M+\begin{pmatrix}-2 & 0\\ -3 & x\end{pmatrix}=N$

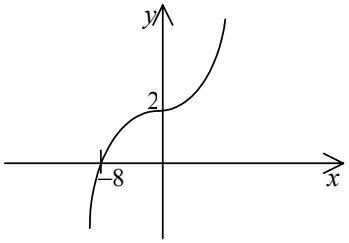
A 0
B -2
C 2
D 6

29 $\begin{pmatrix}-5\\ 1\end{pmatrix}(\,4 \quad -3\,)=$

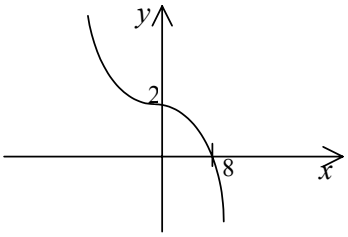
A $(\,-23\,)$
B $\begin{pmatrix}-20\\ -3\end{pmatrix}$
C $(\,-20 \quad -3\,)$
D $\begin{pmatrix}-20 & 15\\ 4 & -3\end{pmatrix}$

30 Antara yang berikut yang manakah mewakili graf $y=-x^3+8$.

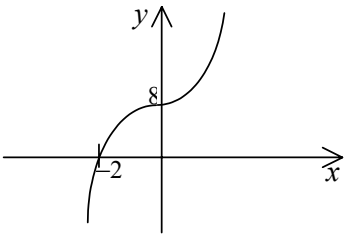
A



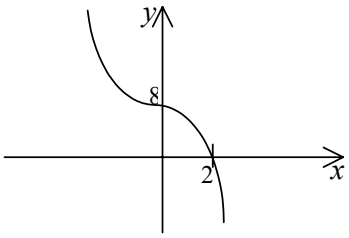
B



C



D



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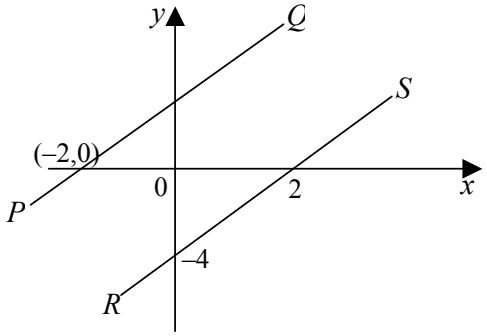
31 Dalam Rajah 12 , garis PQ dan RS adalah selari.



RAJAH 12

Persamaan garis lurus PQ ialah

A $y = 2x + 4$

B $y = 2x - 4$

C $y = \frac{1}{2}x + 4$

D $y = \frac{1}{2}x - 4$

32 Diberi $\xi = \{ x : 12 < x \leq 25 , x$ ialah integer $\}$ dan $A = \{x: x$ ialah nombor dengan keadaan hasil tambah digit-digitnya adalah nombor perdana $\}$. Carikan n(A).

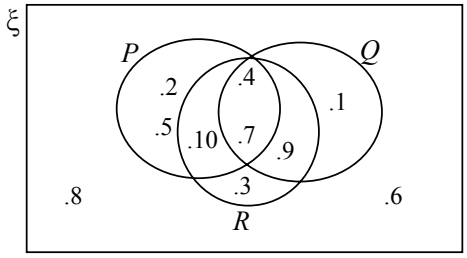
A 4

B 5

C 6

D 7

33 Gambar rajah Venn dalam Rajah 12 menunjukkan semua unsur dalam set P , set Q , set R dan set semesta ξ.



RAJAH 12

Carikan set $P \cap Q' \cap R$.

A {10}

B {2,5}

C {4,7,10}

D {3,4,7,9,10}

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34 Diberi
$\xi = \{ x : 10 \le x \le 25, x \text{ ialah integer} \}$,
P = { x : x ialah nombor dengan keadaan hasil tambah digit-digitnya boleh dibahagi tepat dengan 4 },
Q = { x : x ialah nombor kuasa dua sempurna} .

Carikan $n(\mathrm{P} \cup \mathrm{Q}')$.

A 11

B 14

C 16

D 17

35 Diberi bahawa R berubah secara langsung dengan punca kuasadua j dan $R = 21$ apabila $j = 49$. Ungkapkan R dalam sebutan j

A $R = -\frac{1}{3}\sqrt{j}$

B $R = -3\sqrt{j}$

C $R = \frac{1}{3}\sqrt{j}$

D $R = 3\sqrt{j}$

36 Diberi bahawa m berubah secara langsung dengan $(g + 2)$ dan secara songsang dengan h^2. Apabila $g = 1$, $h = 3$ dan $m = 12$, apakah nilai g apabila $m = 20$ dan $h = 6$?

A 18

B 20

C 25

D 36

37 Kebarangkalian Siti pergi bermain bowling ialah $\frac{3}{5}$ manakala kebarangkalian Siti pergi bermain tenis ialah $\frac{2}{7}$. Hitungkan kebarangkalian bahawa pada suatu masa tertentu Siti pergi bermain bowling atau tenis.

A $\frac{5}{7}$

B $\frac{6}{35}$

C $\frac{5}{12}$

D $\frac{31}{35}$

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38 Sebuah bakul mengandungi 5 biji epal merah dan 3 biji epal hijau. Jika 2 biji epal dikeluarkan secara rawak, kebarangkalian bahawa kedua - duanya epal hijau ialah

A $\frac{3}{32}$

B $\frac{3}{28}$

C $\frac{1}{4}$

D $\frac{9}{64}$

39 Jadual 1 diperoleh daripada mata yang diterima dan bilangan percubaan yang dilakukan oleh seorang pemain dalam suatu permainan.

Mata (x)	1	2	3	4	5
Bilangan percubaan × Mata (fx)	9	20	36	44	40

JADUAL 1

Nilai bagi mata min ialah.

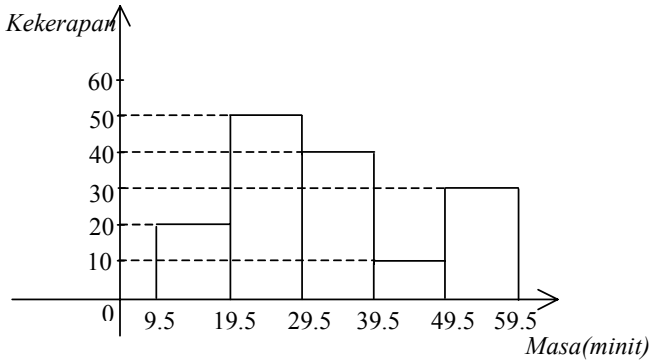
A 2.98

B 3.58

C 29.8

D 35.53

40. Rajah 14 menunjukkan sebuah histogram bagi taburan masa yang digunakan oleh sekumpulan pelajar untuk melayari internet pada satu hari tertentu .



RAJAH 14

Peratus pelajar yang melayari internet sekurang-kurangnya selama 40 minit ialah

A 26.67%

B 53.33 %

C 73.33 %

D 80 %

KERTAS SOALAN TAMAT

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