Mathematics
August 2010
$1\frac{1}{4}$ hours

Name : ..... Class : .....

JABATAN PELAJARAN NEGERI TERENGGANU

PEPERIKSAAN PERCUBAAN
PENILAIAN MENENGAH RENDAH 2010

MATHEMATICS

Paper 1

One Hour Fifteen Minutes

DO NOT OPEN THIS TEST PAPER
UNTIL YOU ARE TOLD TO DO SO

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 done. Then blacken the space for the new answer.*
6. *The diagram in the question provided are not drawn to scale unless stated.*
7. *A list of formulae is provided on page 2.*
8. *You may use a non-programmable scientific calculator.*

Disediakan Oleh:
AKRAM NEGERI TERENGGANU

Dibiayai Oleh:
KERAJAAN NEGERI TERENGGANU

TERENGGANU ANJUNG ILMU

Dicetak Oleh:
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This question paper consists of 25 printed pages.

MATHEMATICS FORMULAE

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

   $(x,y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
6. Average speed $= \frac{\text{distance travelled}}{\text{time taken}}$
7. Mean $= \frac{\text{sum of data}}{\text{number of data}}$
8. Pythagoras Theorem

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

SHAPE AND SPACE

1. Area of rectangle = length x width
2. Area of triangle $= \frac{1}{2}$ x base x height
3. Area of parallelogram = base x height
4. Area of trapezium

   $= \frac{1}{2}$ x (sum of parallel sides) x height
5. Circumference of circle $= \pi d = 2\pi r$
6. Area of circle $= \pi r^2$
7. Curved surface area of cylinder

   $= 2\pi rh$
8. Surface area of sphere $= 4\pi r^2$
9. Volume of right prism

   = cross sectional area x length
10. Volume of cuboid

    = length x width x height
11. Volume of cylinder $= \pi r^2 h$
12. Volume of cone $= \frac{1}{3}\pi r^2 h$
13. Volume of sphere $= \frac{4}{3}\pi r^3$
14. Volume of pyramid

    $= \frac{1}{3}$ x base area x height
15. Sum of interior angles of polygon

    $= (n-2) \times 180^\circ$
16. $\frac{\text{arc length}}{\text{circumference of circle}} = \frac{\text{angle subtended at centre}}{360^0}$
17. $\frac{\text{area of sector}}{\text{area of circle}} = \frac{\text{angle subtended at centre}}{360^0}$
18. Scale factor, $k = \frac{P'A'}{PA}$
19. Area of image $= k^2$ x area of object

RUMUS MATEMATIK

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

   $(x,y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
6. Purata laju = $\frac{\text{jarak yang dilalui}}{\text{masa yang diambil}}$
7. Min = $\frac{\text{hasil tambah nilai data}}{\text{bilangan data}}$
8. Teorem Pithagoras

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

BENTUK DAN RUANG

1. Luas segiempat tepat = panjang x lebar
2. Luas segitiga = $\frac{1}{2}$ x tapak x tinggi
3. Luas segiempat selari = tapak x tinggi
4. Luas trapezium

   = $\frac{1}{2}$ x (hasil tambah dua sisi selari) x tinggi
5. Lilitan bulatan = $\pi d = 2\pi j$
6. Luas Bulatan = πj^2
7. Luas permukaan melengkung silinder

   = $2\pi jt$
8. Luas permukaan sfera = $4\pi j^2$
9. Isipadu prisma tegak

   = luas keratan rentas x panjang
10. Isipadu kuboid = panjang x lebar x tinggi
11. Isipadu silinder = $\pi j^2 t$
12. Isipadu kon = $\frac{1}{3}\pi j^2 t$
13. Isipadu sfera = $\frac{4}{3}\pi j^3$
14. Isipadu peramid tegak

    = $\frac{1}{3}$ x luas tapak x tinggi
15. Hasil tambah sudut pedalaman poligon

    = $(n-2)\times 180^\circ$
16. $\frac{\text{panjang lengkok}}{\text{lilitan bulatan}} = \frac{\text{sudut pusat}}{360^0}$
17. $\frac{\text{luas sektor}}{\text{luas bulatan}} = \frac{\text{sudut pusat}}{360^0}$
18. Faktor skala, $k = \frac{P'A'}{PA}$
19. Luas Imej = k^2 x luas objek

1 Which digit has the correct place values in both numbers?
Digit manakah yang mempunyai nilai tempat yang betul dalam kedua-dua nombor itu?

	Digit	Place value	
		8439567	8593647
A	3	ten thousand	hundred
B	4	hundred thousand	ten thousand
C	5	hundred	hundred thousand
D	6	ten	thousand

2 Which of the following is **not** equivalent to $\frac{2}{5}$?

*Antara yang berikut, yang manakah **tidak** setara dengan $\frac{2}{5}$?*

A $\frac{8}{15}$

B $\frac{12}{30}$

C $\frac{36}{90}$

D $\frac{50}{125}$

3 The following data shows a sequence of prime numbers in ascending order.
Data berikut menunjukkan satu urutan nombor perdana dalam susunan menaik.

$$17 , 19 , x , 29 , 31 , y$$

Find the value of $y - x$.
Cari nilai $y - x$.

A 16

B 14

C 12

D 10

4 Faizal bought a bicycle for RM350. He sold the bicycle for RM280. Calculate the loss percentage.
Faizal membeli sebuah basikal dengan harga RM 350. Dia menjual basikal itu dengan harga RM 280.
Hitung peratus kerugian.

A 80

B 56

C 25

D 20

5 Diagram 1 shows four polygons.
Rajah 1 menunjukkan empat poligon.

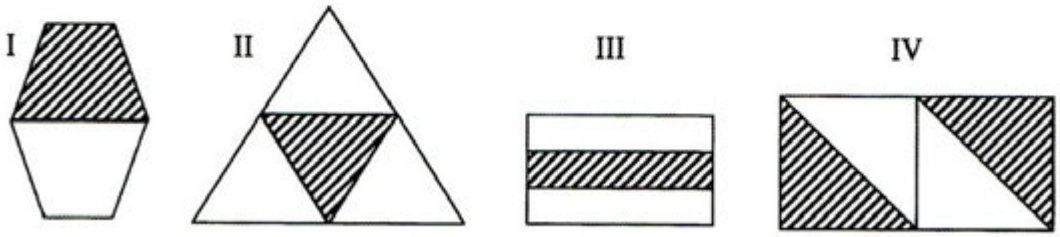


Diagram 1
Rajah 1

Which of the polygons represents $\frac{1}{2}$?
Poligon manakah yang mewakili $\frac{1}{2}$?

A I and II

B I and IV

C I, II and IV

D I, II and IV

6 The distance between $P(-3, -1)$ and $Q(-3, x)$ is 6 units.
Calculate the value of x.
Jarak di antara $P(-3, -1)$ *dan* $Q(-3, x)$ *ialah 6 unit.*
Hitungkan nilai x.

A 5

B 7

C 8

D 9

7 The mass of an empty basket is 2.5 kg. When 10 watermelons are put inside the basket, the total mass become 8.9 kg.
Calculate the average mass, in g, of each watermelon.
Jisim sebuah bakul kosong ialah 2.5 kg. Bila 10 biji tembikai dimasukkan ke dalam bakul itu, jumlah jisimnya menjadi 8.9 kg.
Kira purata jisim, dalam g, setiap biji tembikai.

A 250

B 640

C 890

D 1140

8 Table 1 shows the departure time and the arrival times for four drivers for the journey from *X* to *Y*.
Jadual 1 menunjukkan masa berlepas dan masa ketibaan untuk empat pemandu bagi perjalanan dari X ke Y.

Driver *Pemandu*	Departure times *Masa berlepas*	Arrival times *Masa ketibaan*
A	0745	1025
B	1220	1410
C	10.25 am	12.00 am
D	1.20 pm	2.30 pm

Table 1
Jadual 1

Which drivers used the shortest time?
Pemandu yang manakah mengambil masa yang paling singkat?

9 Find the highest common factor (HCF) of 16, 24 and 48.
Faktor sepunya terbesar (FSTB) bagi 16, 24 dan 48.

A 8

B 12

C 14

D 17

10 Table 2 shows the goals for a hockey team in league competition.
Jadual 2 menunjukkan jaringan bagi pasukan hoki dalam suatu pertandingan liga.

Goal *Jaringan*	0	1	2	3	4
Number of Team *Bilangan Pasukan*	3	6	5	4	2

Table 2
Jadual 2

Calculate the percentage number of teams who obtain more than mode goal.
Hitung peratus bilangan pasukan yang mendapat lebih daripada jaringan mod.

A 30

B 45

C 55

D 85

11 In Diagram 2, MPS is a straight line PR and ST are parallel lines.
Dalam Rajah 2, MPS ialah garis lurus, PR dan ST ialah garisan selari.

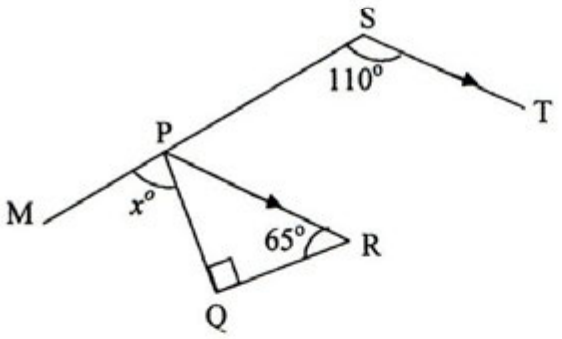


Diagram 2
Rajah 2

Find the value of x.
Cari nilai x.

A 70

B 85

C 95

D 110

12 A total of books are distributed to the three schools, School K, School L, and School M in the ratio 4 : 3 : 12. School M has 56 books more than School K. Calculate the books received by School L?
Sejumlah buku dibahagikan kepada tiga buah sekolah, Sekolah K, Sekolah L, dan Sekolah M dalam nisbah 4 : 3 : 12. Sekolah M mendapat 56 buku lebih daripada Sekolah K.
Hitung jumlah buku yang diterima oleh Sekolah L?

A 21

B 24

C 28

D 48

13 In Diagram 3, JKLM is a circle with centre O and JOL is a diameter of the circle.
Dalam Rajah 3, JKLM ialah bulatan dengan pusat O dan JOL ialah diameter bulatan itu.

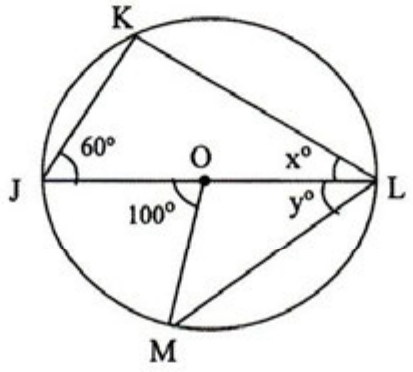


Diagram 3
Rajah 3

Find the value of $y - x$.
Cari nilai $y - x$.

A 10

B 20

C 30

D 50

14 Given that $x + y = 9$ and $2x - y = 3$.
Calculate the value of x.
Diberi $x + y = 9$ dan $2x - y = 3$.
Hitung nilai x.

A 2

B 4

C 5

D 6

15 Diagram 4 shows part of a number line.
Rajah 4 menunjukkan sebahagian daripada suatu garis nombor.

Diagram 4
Rajah 4

Which of the following is **NOT** the value of G?
*Antara yang berikut, manakah **BUKAN** nilai bagi G?*

A $\frac{2.11}{10}$

B $\frac{21.1}{100}$

C $\frac{211}{1000}$

D $\frac{211}{100}$

16 Solve the inequalities for $3 - 2x \geq 9$.
Selesaikan ketaksamaan bagi $3 - 2x \geq 9$.

A $x \leq -3$

B $x \geq -3$

C $x \leq -6$

D $x \geq -6$

17 Diagram 5 shows three polygons.
Rajah 5 menunjukkan tiga poligon.

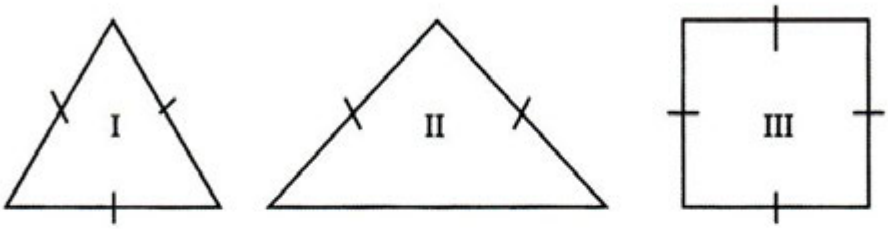


Diagram 5
Rajah 5

Which of the following has more than two lines of symmetry?
Yang manakah antara berikut mempunyai lebih daripada dua garis simetri?

A I and II

B I and III

C II and III

D I, II and III

18 Diagram 6 shows the construction of ∠PQR and ∠SQR.
Rajah 6 menunjukkan pembinaan bagi ∠PQR dan ∠SQR.

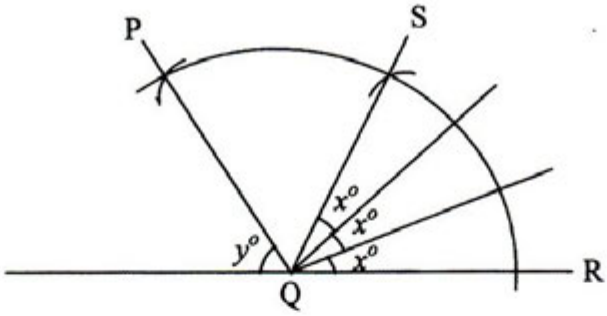


Diagram 6
Rajah 6

Find the value of $x + y$.
Cari nilai bagi $x + y$.

A 150

B 120

C 90

D 80

19 Diagram 7, PQTU and QRST are squares. UQS is a semicircle with diameter US.
Rajah 7, PQTU dan QRST ialah segi empat sama. UQS ialah sebuah semibulatan dengan diameter US.

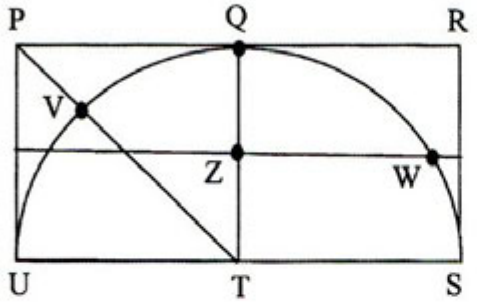


Diagram 7
Rajah 7

X is the locus of a point which moves such that its distance from point T is always constant. Y is the locus of a point which moves such that it is always equidistant from PQ and PU.
Which of the points are the intersection of locus X and locus Y?
X ialah lokus satu titik yang bergerak supaya jaraknya dari titik T sentiasa tetap. Y ialah lokus suatu titik yang bergerak supaya jaraknya sentiasa sama dari PQ dan PU.

A Q

B V

C W

D Z

20 En. Kamal drove a car and started his journey at 8.00 in the morning. He stopped for $\frac{3}{4}$ hour for lunch. Then he continued driving and arrived at the destination at 3.15 pm on the same day.
How long was the journey?
En. Kamal memandu kereta dan mula perjalanannya pada jam 8.00 pagi. Dia berhenti makan selama $\frac{3}{4}$ jam. Kemudian dia meneruskan perjalanannya dan sampai ke destinasi pada jam 3.15 petang pada hari yang sama.
Berapa lamakah perjalanan itu?

A 6 hours 30 min

B 7 hours 30 min

C 7 hours 15 min

D 8 hours

21 Table 3 shows the number of books borrowed by a group of students from a library during a semester.
Jadual 3 menunjukkan bilangan buku yang telah dipinjam oleh sekumpulan pelajar dari perpustakaan semasa cuti semester.

Number of Books *Bilangan buku*	5	10	15	20	25
Frequency *Kekerapan*	3	5	6	4	2

Table 3
Jadual 3

Calculate the mean number of books borrowed by students.
Hitung min bagi buku yang dipinjam oleh pelajar tersebut.

A 14.25

B 14.50

C 15.00

D 16.25

22 In Diagram 8, KLM and PLQ are straight lines.
Dalam Rajah 8, KLM dan PLQ adalah garis lurus.

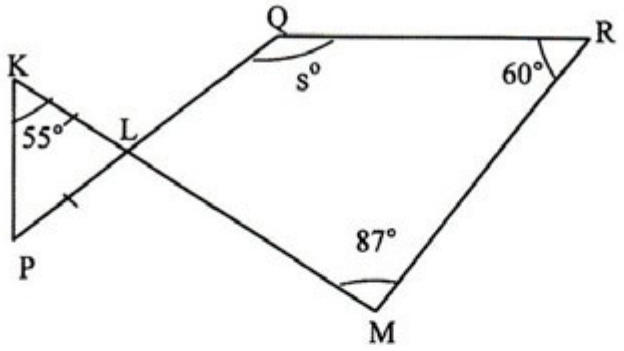


Diagram 8
Rajah 8

Calculate the value of s.
Hitung nilai s.

A 72

B 88

C 143

D 158

23 Diagram 9 shows a trapezium JKLN and JMN is a right angled triangle.
Rajah 9 menunjukkan sebuah trapezium JKLN dan JMN ialah sebuah segitiga bersudut tegak.

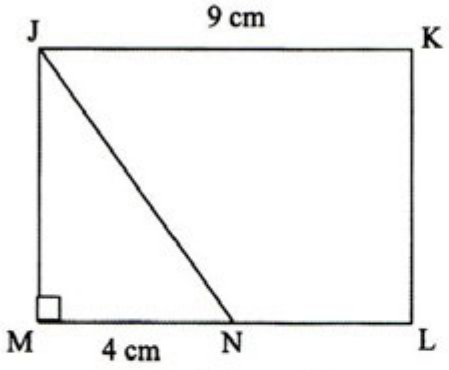


Diagram 9
Rajah 9

The area of the trapezium is 49 cm^2 .
Find the area, in cm^2, of the right angled triangle.
Luas trapezium ialah 49 cm^2.
Cari luas, dalam cm^2, bagi segitiga bersudut tegak itu.

A 14

B 20

C 28

D 35

24 Diagram 10 shows a straight line LN. M is the midpoint of the line.
Rajah 10 menunjukkan suatu garis lurus LN. M ialah titik tengah bagi garis itu.

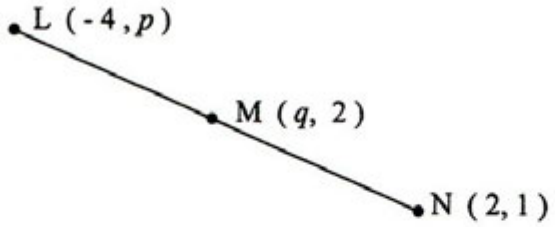


Diagram 10
Rajah 10

Calculate the values of p and q.
Hitung nilai p dan q.

A $p = 5, q = -1$

B $p = 5, q = -3$

C $p = 3, q = -1$

D $p = 3, q = 1$

25 Diagram 11 shows a cone.
Rajah 11 menunjukkan sebuah kon.

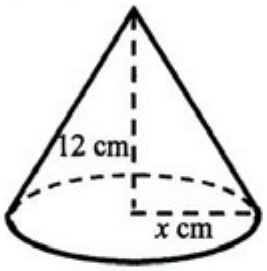


Diagram 11
Rajah 11

The volume of the cone is 49π cm^3.
Isipadu kon ialah 49π cm^3.
Calculate the radius, in cm, of the cone.
Hitung jejari, dalam cm, bagi kon itu.

A 3.5

B 4.08

C 10.5

D 12.25

26 In Diagram 12, LMNP is a cyclic quadrilateral and O is the centre of the circle.
Dalam rajah 12, LMNP ialah sebuah sisi empat kitaran dan O ialah pusat bulatan.

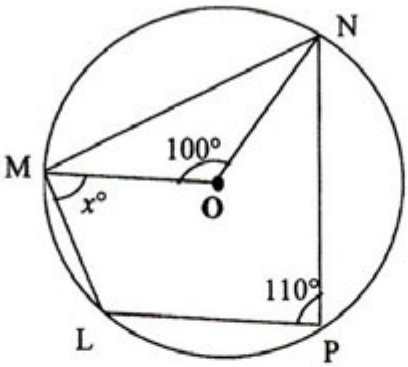


Diagram 12
Rajah 12

Find the value of x.
Cari nilai x.

A 40

B 30

C 70

D 80

27 In Diagram 13, KLMNO is a regular pentagon and FGHIKO is a regular hexagon.
Dalam Rajah 13, KLMNO ialah sebuah pentagon sekata dan FGHIKO ialah sebuah heksagon sekata.

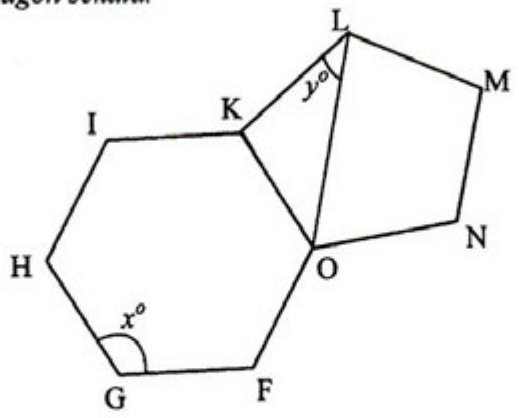


Diagram 13
Rajah 13

Find the value of $x + y$.
Cari nilai $x + y$.

A 138

B 144

C 148

D 156

28 In Diagram 14, KL is parallel to MN and PN is parallel to LQ.
Dalam Rajah 14, KL selari dengan MN dan PN selari dengan LQ.

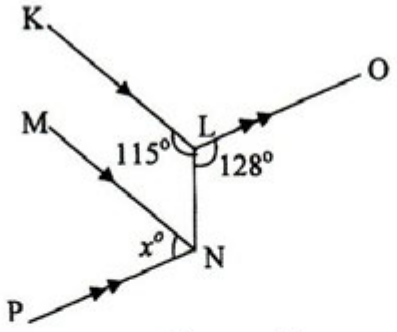


Diagram 14
Rajah 14

Find the value of x.
Cari nilai x.

A 37

B 52

C 53

D 63

29 Diagram 15 shows a polygon.
Rajah 15 menunjukkan sebuah poligon.

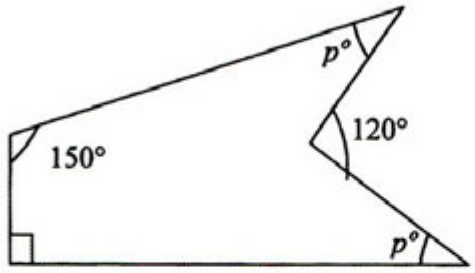


Diagram 15
Rajah 15

Find the value of *p*.
Cari nilai p.

A 80

B 60

C 30

D 25

30 In Diagram 16, PQRST is a regular pentagon.
Dalam Rajah 16, PQRST is a pentagon sekata.

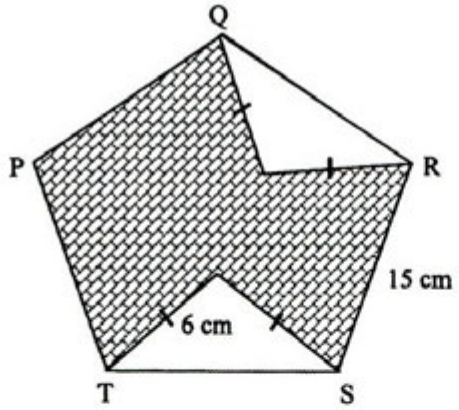


Diagram 16
Rajah 16

Calculate the perimeter, in cm, of the shaded region.
Hitung perimeter, dalam cm, bagi kawasan yang berlorek.

A 45

B 69

C 74

D 99

31 Diagram 17 shows a circle STUV with centre O. TOV is a diameter of the circle.
Rajah 17 menunjukkan sebuah bulatan STUV berpusat O. TOV ialah diameter bulatan itu.

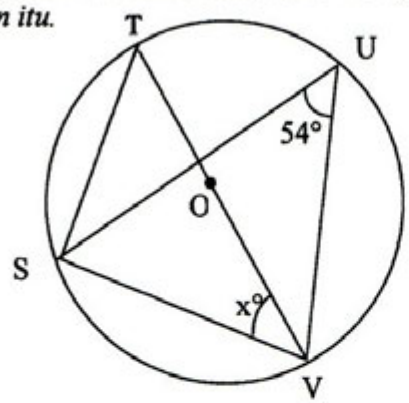


Diagram 17
Rajah 17

Find the value of x.
Cari nilai x.

A 90
B 72
C 36
D 27

32 In Diagram 18, the volume of the cylinder is equal to the volume of the cuboid.
Dalam Rajah 18, isipadu sfera adalah sama dengan isipadu kuboid.

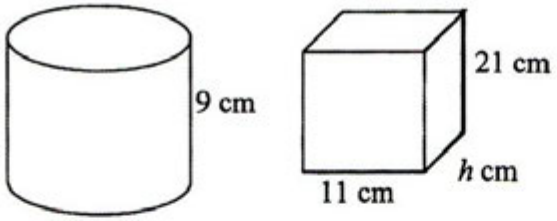


Diagram 18
Rajah 18

The radius of the cylinder is 7 cm.
Find the length, in cm, of h.
Jejari silinder ialah 7 cm.
Cari panjang, dalam cm, bagi h.
[Use / *Guna* $\pi = \frac{22}{7}$]

A 10
B 8
C 6
D 5

33 Diagram 19 shows a rectangle OPNL and circle JKL. JP = 4 cm and O is the centre of the circle.
Rajah 19 menunjukkan suatu segiempat tepat OPNL dan bulatan JKL. JP = 4 cm dan O ialah pusat bagi bulatan itu.

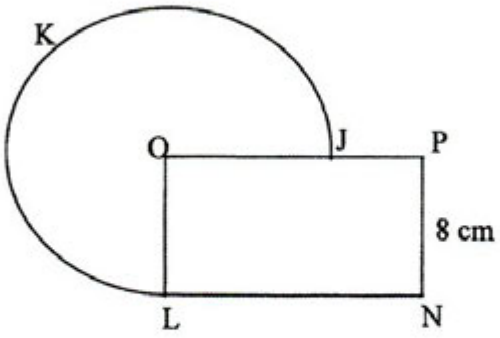


Diagram 19
Rajah 19

Calculate the area, in cm^2, of the whole diagram.
Hitung luas, dalam cm^2, *seluruh rajah itu.*

A $12\pi + 96$

B $16\pi + 64$

C $48\pi + 16$

D $48\pi + 96$

34 In Diagram 20, O is the centre of the circle. PTQ and SUR are straight lines.
Dalam Rajah 20, O ialah pusat bulatan. PTQ dan SUR adalah garis lurus.

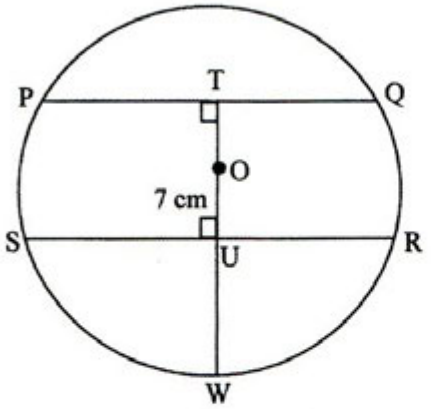


Diagram 20
Rajah 20

The length of PTQ is 48 cm and PTQ = SUR.
Calculate the length, in cm, of TW.
Panjang PTQ ialah 48 cm dan PTQ = SUR.
Hitung panjang, dalam cm, TW.

A 25

B 31

C 32

D 39

35 In Diagram 21, STU is a sector of circle with centre S.
Dalam Rajah 21, STU ialah sektor bulatan berpusat S.

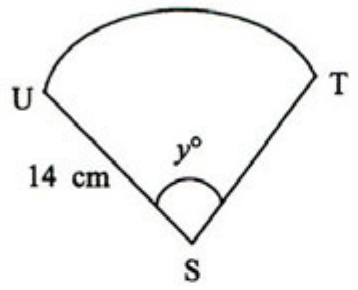


Diagram 21
Rajah 21

The length of arc TU is 33 cm.
Find the value of y.
Panjang lengkok TU ialah 33 cm.
Cari nilai y.

$\left[use / guna\ \pi = \frac{22}{7} \right]$

A 114

B 135

C 225

D 270

36 In Diagram 22, PRTV is a rectangle. Q, S, U and W are the midpoints of PR, RT, TV dan PV respectively.
Dalam Rajah 22, PRTV ialah sebuah segiempat tepat. Q, S, U and W adalah masing-masing titik tengah kepada PR, RT, TV dan PV.

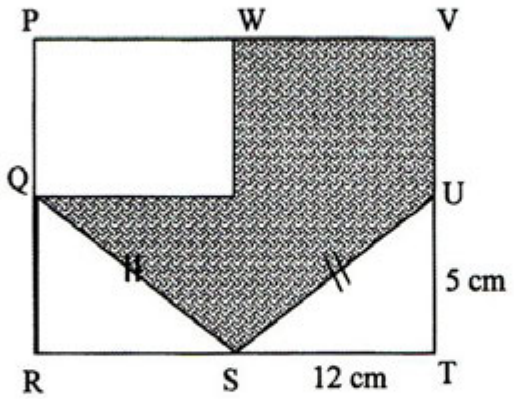


Diagram 22
Rajah 22

Calculate the perimeter, in cm, of the shaded region.
Hitung perimeter, dalam cm, kawasan yang berlorek.

A 48

B 54

C 60

D 70

37 Diagram 23 shows a rectangle PQRT. U, V and S are the midpoints of PT, PQ and QR respectively.
Rajah 23 menunjukkan sebuah segiempat tepat PQRT. U, V dan S adalah titik tengah bagi PT, PQ dan QR masing-masing.

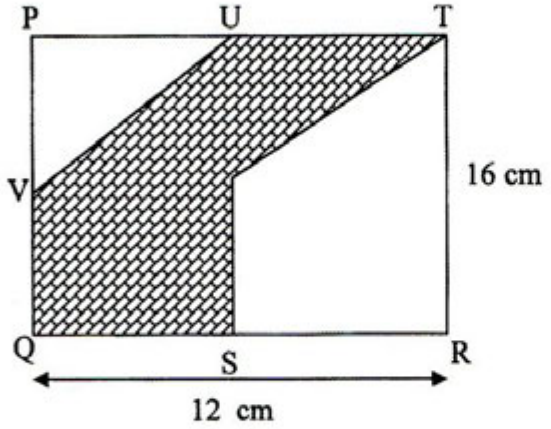


Diagram 23
Rajah 23

Calculate the area, in cm^2, of the shaded region.
Hitung luas, dalam cm^2, kawasan yang berlorek.

A 192

B 120

C 96

D 72

38 Diagram 24 is a pie chart showing the number of cars in a car park at Mydin Mall Kuala Terengganu. The total number of cars in the car park is 270.
Rajah 24 ialah carta pai yang menunjukkan bilangan kereta di tempat letak kereta di Pasaraya Mydin di Kuala Terengganu. Jumlah kereta di tempat letak kereta ialah 270.

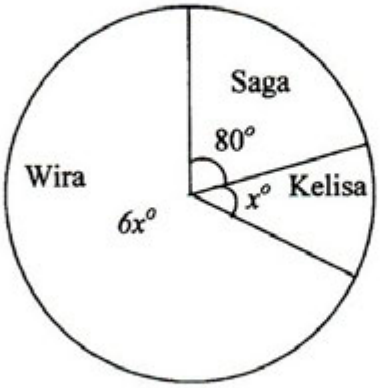


Diagram 24
Rajah 24

Which statement is correct based on the pie chart?
Pernyataan manakah yang betul berdasarkan carta pai ini?

A $\frac{1}{6}$ of the cars is Kelisa
$\frac{1}{6}$ *daripada kereta ialah Kelisa*

B 30% of the cars is Saga
30% daripada kereta ialah Saga

C The ratio of the number of Kelisa to Saga is 3 : 8
Nisbah bilangan Kelisa kepada Saga ialah 3 : 8

D The total number of Wira is 180
Jumlah kereta Wira ialah 180

39 In Diagram 25, parallelogram JK'L'M' is the image of the parallelogram JKLM under an enlargement.
Dalam Rajah 25, segi empat selari JK'L'M' ialah imej bagi segi empat selari JKLM di bawah suatu pembesaran.

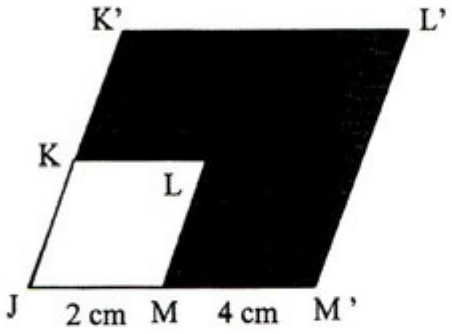


Diagram 25
Rajah 25

The area of JKLM is 10 cm².
Calculate the area, in cm², of the shaded region.
Luas JKLM ialah 10 cm².
Hitung luas, dalam cm², *kawasan yang berlorek.*

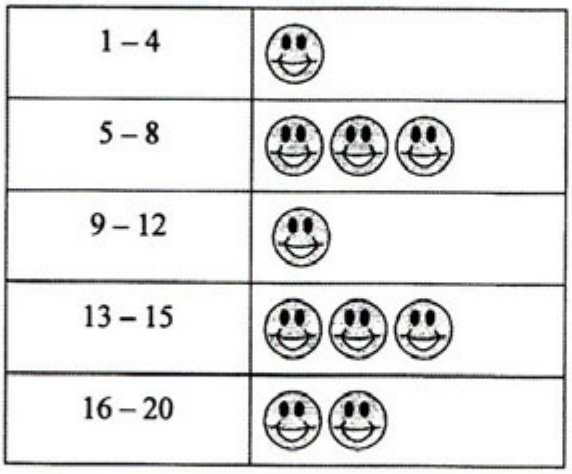
A 30

B 40

C 80

D 90

40 Diagram 26 is a pictogram shows the scores for a group of pupils in a Mathematics quiz.
Rajah 26 ialah piktogram yang menunjukkan skor bagi sekumpulan murid dalam kuiz Matematik.



represents 2 students
mewakili 2 orang pelajar

Diagram 26
Rajah 26

Calculate the percentage of participants whose score more than 8.
Hitung peratus bilangan pelajar yang mendapat skor lebih daripada 8.

A 25

B 35

C 60

D 80