SULIT
50/1
Matematik
Kertas 1
Ogos 2012
1 ¼ Jam

50/1

MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
NEGERI KEDAH DARUL AMAN

PROGRAM PENINGKATAN PRESTASI AKADEMIK
PENILAIAN MENENGAH RENDAH 2012

MATEMATIK

KERTAS 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

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

Kertas soalan ini mengandungi **32** halaman bercetak

FORMULAE / FORMULA

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

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

RELATIONS / PERKAITAN

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

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

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

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

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

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

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

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

$Laju\ Purata = \frac{Jarak\ yang\ dilalui}{Masa\ yang\ diambil}$

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

$Min = \frac{Jumlah\ \ data}{bilangan\ \ data}$

8 Pythagoras' Theorem $c^2 = a^2 + b^2$

Teorem Pithagoras' $c^2 = a^2 + b^2$

SHAPE AND SPACE / BENTUK DAN RUANG

1 Area of rectangle = length × width
Luas segi empat tepat = panjang × lebar

2 Area of triangle = $\frac{1}{2}$ × base × height
Luas segi tiga = $\frac{1}{2}$ × *tapak* × *tinggi*

3 Area of parallelogram = base × height
Luas segi empat selari = tapak × tinggi

4 Area of trapezium = $\frac{1}{2}$ × sum of parallel lines × height
Luas trapezium = $\frac{1}{2}$ × *jumlah sisi selari × tinggi*

5 Circumference of circle = $\pi d = 2\pi r$
Lilitan bulatan $= \pi d = 2\pi j$

6 Area of circle = πr^2
Luas bulatan $= \pi j^2$

7 Curved surface area of cylinder = $2\pi rh$
Luas permukaan melengkung silinder $= 2\pi jt$

8 Surface area of sphere = $4\pi r^2$
Luas permukaan sfera $= 4\pi j^2$

9 Volume of right prism = cross sectional area × length
Isi padu prisma tegak = luas keratan rentas × panjang

10 Volume of cuboid = length × width × height
Isi padu kuboid = panjang × lebar × tinggi

11 Volume of cylinder = $\pi r^2 h$
Isi padu silinder $= \pi r^2 t$

12 Volume of cone = $\frac{1}{3}\pi r^2 h$
Isi padu kon $= \frac{1}{3}\pi j^2 t$

13 Volume of sphere = $\frac{4}{3}\pi r^3$

Isi padu sfera = $\frac{4}{3}\pi j^3$

14 Volume of right pyramid = $\frac{1}{3}$ × base area × height

Isi padu piramid = $\frac{1}{3}$ × *luas tapak* × *tinggi*

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

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

16 $\frac{\text{Arc length}}{\text{Circumference of circle}} = \frac{\text{Angle subtended at centre}}{360^\circ}$

$\frac{\textit{Panjang lengkok}}{\textit{Lilitan bulatan}} = \frac{\textit{Sudut pusat}}{360^\circ}$

17 $\frac{\text{Area of sector}}{\text{Area of circle}} = \frac{\text{Angle subtended at centre}}{360^\circ}$

$\frac{\textit{Luas sektor}}{\textit{Luas bulatan}} = \frac{\textit{Sudut sektor}}{360^\circ}$

18 Scale factor, $k = \frac{PA'}{PA}$

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

19 Area of image = k^2 × *area of object*

Luas imej = k^2 × *luas objek*

Answer all questions.
Jawab semua soalan.

1. The number 285 679 is written as 300 000 after rounding off to the
Nombor 285 679 *ditulis sebagai* 300 000 *setelah dibundarkan kepada*

A nearest hundred
ratus yang hampir

B nearest thousand
ribu yang hampir

C nearest ten thousand
puluh ribu yang hampir

D nearest hundred thousand
ratus ribu yang hampir

2. Table 2 shows the prime factors of 42 and 105.
Jadual 2 *menunjukkan faktor perdana bagi* 42 *dan* 105.

Numbers *Nombor*	42	105
Prime factors *Faktor perdana*	$2 \times 3 \times 7$	$3 \times 5 \times 7$

Table 2
Jadual 2

Find the HCF of 42 and 105.
Cari FSTB bagi 42 *dan* 105.

A 7

B 21

C 84

D 210

3. The quotient of a number divided by 1 000 is 0.03. What is the number?
Hasil bahagi satu nombor dengan 1 000 *ialah* 0.03. *Apakah nombor itu*?

A. 30

B. 300

C. 3 000

D. 30 000

4. In a classroom of 40 students, $\frac{2}{5}$ of the students score Grade A, 35% of the students score Grade B and the rest score Grade C in an examination.
Find the number of students who score Grade C.

Dalam sebuah kelas yang mengandungi 40 *murid,* $\frac{2}{5}$ *daripadanya mendapat Gred* A, 35% *daripada murid itu mendapat Gred* B *dan bakinya mendapat Gred* C *dalam satu peperiksaan. Cari bilangan murid yang mendapat Gred* C.

A 10

B 14

C 16

D 30

5. Diagram 5 shows the selling price for 4 types of *Baju Melayu* during *Hari Raya* Sales.
Rajah 5 *menunjukkan harga jualan bagi* 4 *jenis Baju Melayu semasa Jualan Hari Raya.*

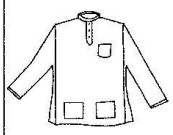
	Kiki	Lala	Mami	Nona
Baju Melayu				
Price *Harga*	RM 120	RM 122	RM 130	RM 132

Diagram 5
Rajah 5

If the cost price is RM 110, which *Baju Melayu* was sold 20% above the cost price.
Jika harga kos barang itu ialah RM 110, *Baju Melayu manakah yang dijual* 20% *melebihi harga kos.*

A Nona

B Mami

C Lala

D Kiki

6. Diagram 6 shows part of a number line.
Rajah 6 menunjukkan sebahagian daripada suatu garis nombor.

Diagram 6
Rajah 6

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

A -9

B -6

C 9

D 12

7. Table 7 shows the height of three students in a class.
Jadual 7 menunjukkan ketinggian tiga orang murid dalam sebuah kelas.

Students *Murid*	Height *Tinggi*
Ahmad	1 m 56 cm
Patrick	?
Mohan	1 m 78 cm

Table 7
Jadual 7

Find the height of Patrick, in cm, if the sum of their height is 4 m 79 cm.
Cari tinggi Patrick, dalam cm, *jika jumlah ketinggian mereka ialah* 4 m 79 cm.

A 145

B 148

C 156

D 178

8. The mass of a box of books and a basket are 2.5 kg and 270 g respectively. If Sarima bought 2 boxes of books and 3 baskets, calculate the total weight of the goods.
Jisim sekotak buku dan sebuah bakul masing-masing ialah 2.5 kg *dan* 270 g. *Jika Sarima membeli* 2 *kotak buku dan* 3 *buah bakul, kirakan jumlah jisim barang-barang itu.*

A 4.18 kg

B 4.81 kg

C 5.45 kg

D 5.81 kg

9. In Diagram 9, *KM* and *SV* are transversals.
Dalam Rajah 9, *KM dan SV ialah perentas.*

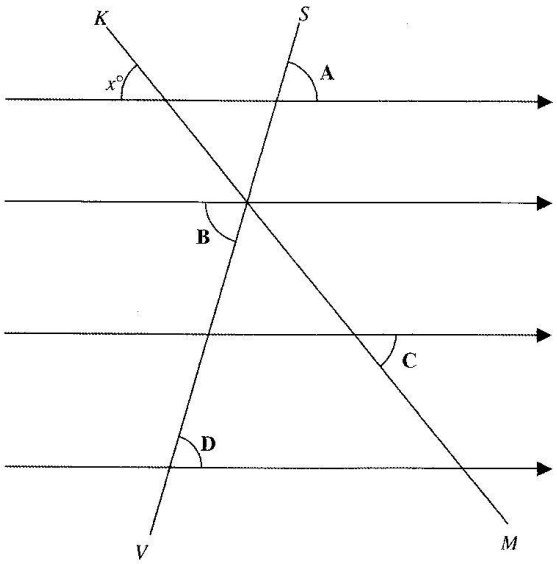


Diagram 9
Rajah 9

Which of the angles marked **A**, **B**, **C** and **D** is equal to *x*.
Antara sudut-sudut yang bertanda **A, B, C** *dan* **D,** *yang manakah saiznya sama dengan x.*

10. Diagram 10 shows a quadrilateral.
Rajah 10 *menunjukkan sebuah sisi empat.*

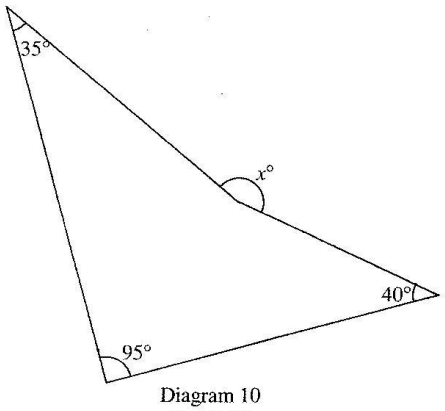


Diagram 10
Rajah 10

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

A 140
B 150
C 160
D 170

11. In Diagram 11, *PQSV* is a rectangle and *VTSR* is a straight line.
Dalam Rajah 11, *PQSV ialah segi empat tepat dan VTSR ialah garis lurus.*

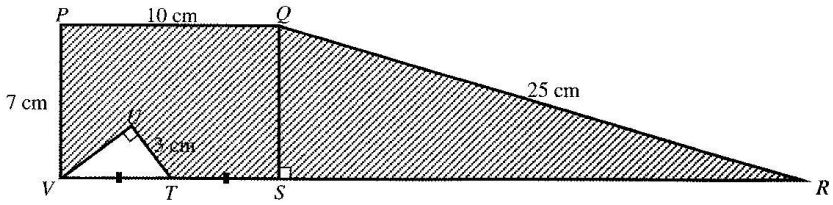


Diagram 11
Rajah 11

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

A 76
B 78
C 148
D 154

12. Diagram 12 shows a combination of isosceles triangle *KLN* and right angled-triangle *LMN*.
Rajah 12 *menunjukkan gabungan segi tiga sama kaki KLN dan segi tiga bersudut tegak LMN.*

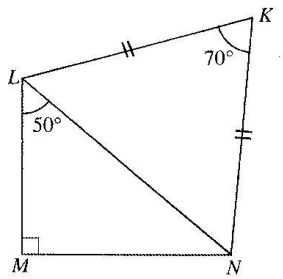


Diagram 12
Rajah 12

Find the value of $\angle KNM$.
Cari nilai bagi $\angle KNM$.

A 45°
B 55°
C 60°
D 95°

13. In Diagram 13, *PQRS* is part of a nonagon. *TQRV* is part of a regular polygon.
Dalam Rajah 13, *PQRS ialah sebahagian daripada nonagon. TQRV ialah sebahagian daripada suatu poligon sekata.*

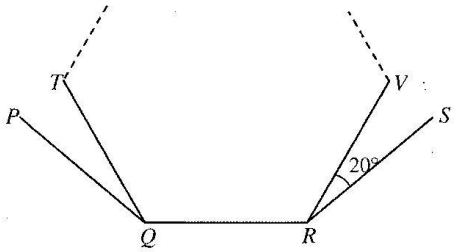


Diagram 13
Rajah 13

Calculate the number of sides of polygon *TQRV*.
Kira bilangan sisi bagi poligon TQRV.

A 6
B 7
C 8
D 9

14. In Diagram 14, two equilateral triangles are drawn on sides of the square *PQRT*.
Dalam Rajah 14, *dua buah segi tiga sama sisi telah dilukis pada sisi-sisi segi empat sama PQRT.*

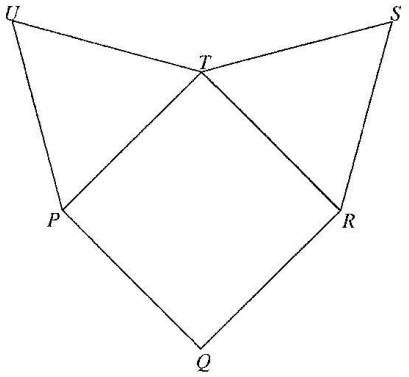


Diagram 14
Rajah 14

Given the area of *PQRT* is 64 cm^2, calculate the perimeter, in cm, of the whole diagram.
Diberi luas PQRT ialah 64 cm^2, *hitung perimeter, dalam* cm, *seluruh rajah.*

A 40
B 48
C 56
D 64

15. In Diagram 15, the area of triangle *QTR* is 36 cm^2.
Dalam Rajah 15, *luas segi tiga QTR ialah* 36 cm^2.

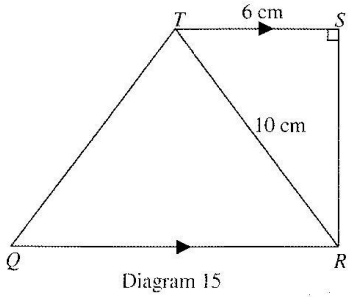


Diagram 15
Rajah 15

Calculate the length, in cm, of *QR*.
Hitung panjang, dalam cm, *QR*.

A 3.6
B 4.5
C 6
D 9

16. In Diagram 16, *PTR* is a straight line.
Dalam Rajah 16, *PTR ialah garis lurus.*

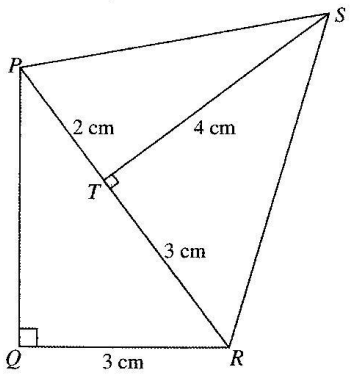


Diagram 16
Rajah 16

Calculate the area, in cm^2, of rectangle *PQRS*.
Hitung luas, dalam cm^2, *segi empat PQRS.*

A 35

B 32

C 22

D 16

17. Diagram 17 shows the net of a geometric solid.
Rajah 17 menunjukkan bentangan sebuah pepejal geometri.

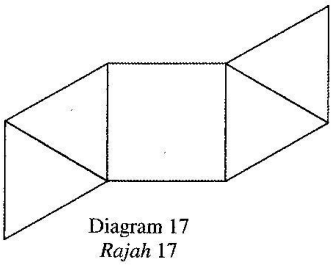


Diagram 17
Rajah 17

Name the geometric solid.
Namakan pepejal geometri itu.

A Cube
Kubus

B Cuboid
Kuboid

C Prism
Prisma

D Pyramid
Piramid

18. In Diagram 18, *QRS* is a straight line and *QS* = *SU*.
Dalam Rajah 18, QRS ialah garis lurus dan QS = SU.

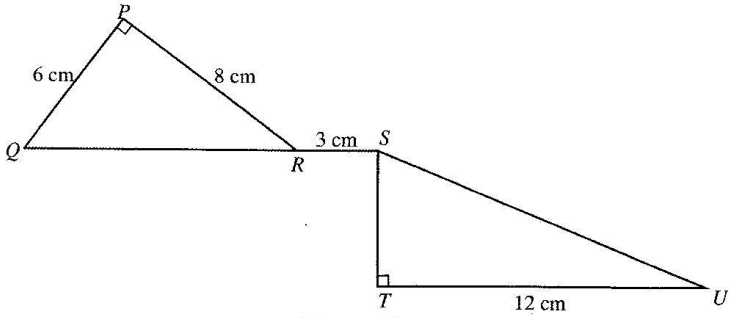


Diagram 18
Rajah 18

Calculate the length, in cm, of *ST*.
Hitung panjang, dalam cm, *bagi ST.*

A 5
B 6
C 9
D 10

19. Diagram 19 shows the triangles drawn on a Cartesian plane with sides of 1 unit.
Rajah 19 *menunjukkan segi tiga yang dilukis pada satah Cartesan bersisi* 1 *unit.*

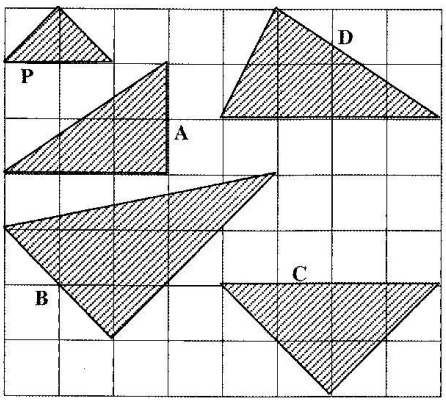


Diagram 19
Rajah 19

Which of the triangles marked **A, B, C** and **D** is the enlargement of triangle P.
Di antara segi tiga-segi tiga yang bertanda **A, B, C** *dan* **D**, *yang manakah pembesaran bagi segi tiga* **P.**

20. Diagram 20 shows a semicircle with centre O.
Rajah 20 *menunjukkan sebuah semibulatan berpusat* O.

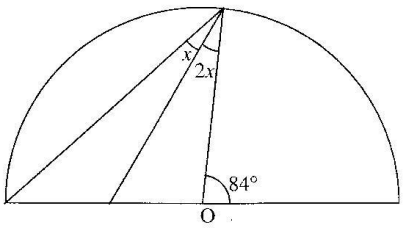


Diagram 20
Rajah 20

Find the value of x.
Cari nilai bagi x.

A 14°

B 17°

C 20°

D 23°

21. In Diagram 21, *SR* is an arc of circle with centre O. Given *POS* and *RQO* are straight lines and the area of triangle *POQ* is 15 cm^2.
Dalam Rajah 21, *SR ialah lengkok bulatan berpusat* O. *Diberi POS dan RQO ialah garis lurus dan luas segi tiga POQ ialah* 15 cm^2.

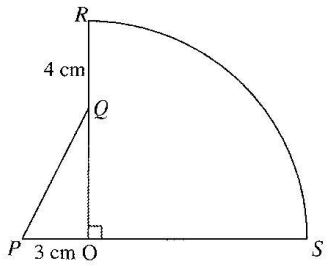


Diagram 21
Rajah 21

Calculate the length, in cm, of arc *SR*.
Hitung panjang, dalam cm, *lengkok SR.*

(Use / *Guna* $\pi = \frac{22}{7}$)

A 11

B 22

C 44

D 88

22. Diagram 22 shows 4 quadrants and a rectangle *KLMN*. Two quadrants with centre *K* and the other two quadrants with centre *M*.
Rajah 22 *menunjukkan* 4 *sukuan bulatan dan sebuah segi empat tepat KLMN. Dua daripada sukuan bulatan itu berpusat K dan dua lagi sukuan bulatan berpusat M.*

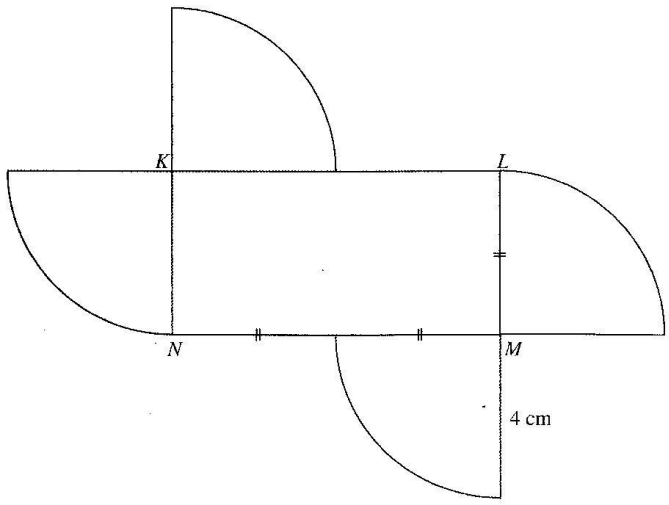


Diagram 22
Rajah 22

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

A $2\pi + 24$

B $4\pi + 24$

C $8\pi + 32$

D $16\pi + 32$

23. Diagram 23 shows two circles with centre O. *JKLMN* is a straight line and *JK* = *KM*.
Rajah 23 *menunjukkan dua buah bulatan berpusat* O. *JKLMN ialah garis lurus dan JK* = *KM*.

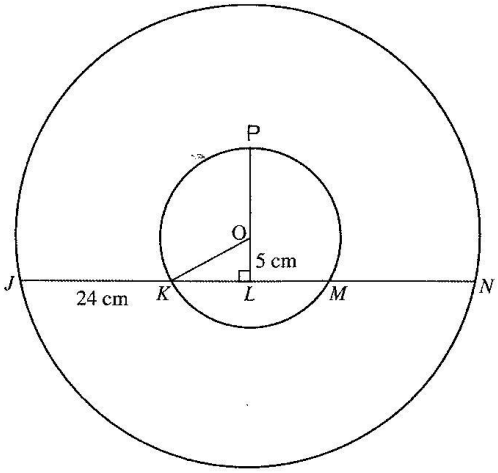


Diagram 23
Rajah 23

Find the length, in cm, of *PL*.
Cari panjang, dalam cm, *bagi PL*.

A 12

B 13

C 18

D 29

24. Diagram 24 shows a circle *KLMN* with centre O. *JNK* is a straight line.
Rajah 24 *menunjukkan sebuah bulatan KLMN dengan pusat* O. *JNK ialah garis lurus.*

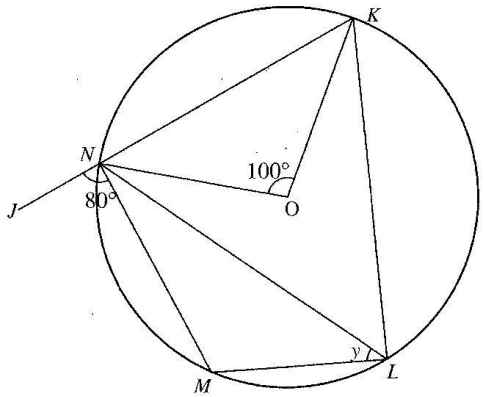


Diagram 24
Rajah 24

Find the value of y
Cari nilai bagi y.

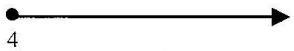
A 30°

B 35°

C 40°

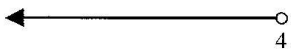
D 45°

25. Given $3 - 2x < -5$, find the value of x.
Diberi $3 - 2x < -5$, *cari nilai bagi* x.

A 

B

C

D 

26. Diagram 26 shows a composite solid consisting of a right pyramid and a cuboid.
Given the height of the pyramid is 4 cm.
Rajah 26 menunjukkan gabungan pepejal yang terdiri daripada sebuah piramid dan sebuah kuboid. Diberi tinggi piramid itu ialah 4 cm.

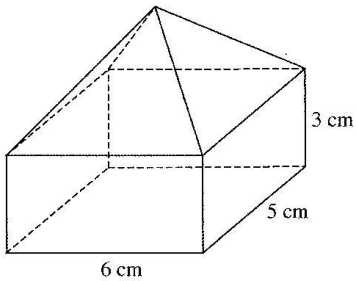


Diagram 26
Rajah 26

Find the volume, in cm^3, of the solid.
Cari isi padu, dalam cm^3, *bagi pepejal itu.*

A 120
B 130
C 210
D 360

27. Diagram 27 shows the price of a pack of stationary sold in a book stall.
Rajah 27 menunjukkan harga satu bungkusan alat tulis yang dijual di sebuah kedai buku.

Items in each pack *Barangan dalam setiap bungkusan*	Price (RM) *Harga* (RM)
	28
	32

Diagram 27
Rajah 27

Find the price of a .

Cari harga satu .

A RM 4

B RM 7

C RM 8

D RM 9

28. Rahman drives his car from *R* to *S* at the average speed of 90 km/h for 3 hours 30 minutes. He continues his journey for a distance of 100 km from *S* to *T* and takes 1 hour 30 minutes. Calculate the average speed, in km/h, for the journey from *R* to *T*.

Rahman memandu keretanya dari R ke S dengan purata laju 90 km/j *dalam masa* 3 jam 30 minit. *Dia meneruskan perjalanan sejauh* 100 km *dari S ke T dan mengambil masa* 1 jam 30 minit.
Hitung purata laju, dalam km/j, *perjalanan R ke T.*

A 55

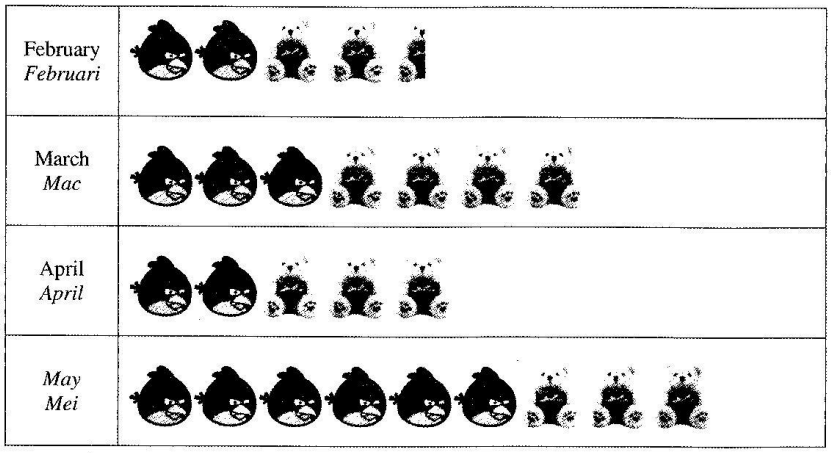
B 65

C 83

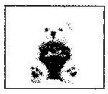
D 92

29. The pictogram in Diagram 29 shows the number of two types of toys sold in a store over 4 months.

Piktogram dalam Rajah 29 menunjukkan bilangan dua jenis anak patung yang dijual di sebuah kedai mainan dalam tempoh 4 bulan.



Represents 5 Angry Birds
Mewakili 5 anak patung Angry Bird



Represents 2 Teddy Bears
Mewakili 2 anak patung Teddy Bear

Diagram 29
Rajah 29

The store made a total profit of RM 567 for Angry Birds and RM 243 for Teddy Bears over 4 months.
Calculate the average profit, in RM, for each toy sold.

Kedai itu memperolehi keuntungan RM 567 *bagi jualan Angry Bird dan* RM 243 *keuntungan bagi anak patung Teddy Bear dalam tempoh* 4 *bulan. Hitung purata keuntungan, dalam* RM, *setiap patung yang dijual.*

A 7

B 8

C 9

D 10

30. Diagram 30 is a bar chart shows the number of shirts sold over 3 months.
Rajah 30 ialah carta palang yang menunjukkan bilangan baju yang dijual dalam tempoh 3 bulan.

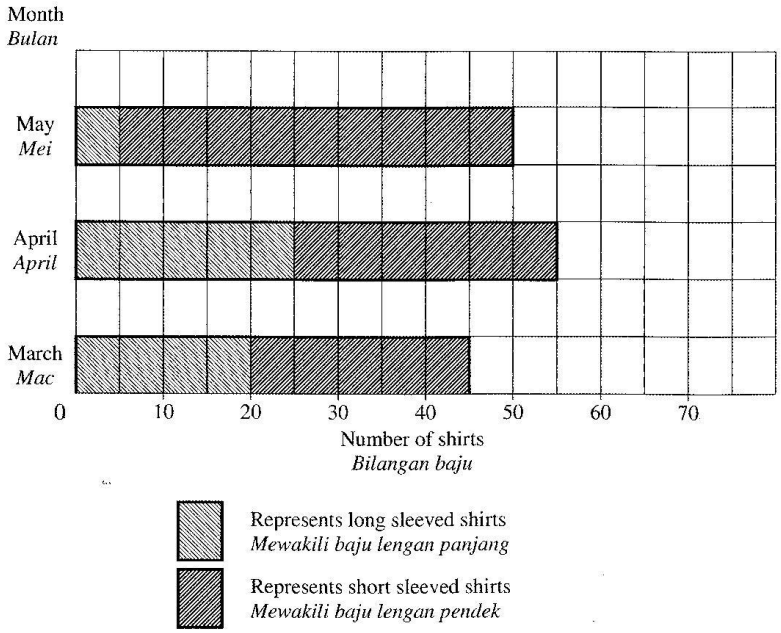


Diagram 30
Rajah 30

Which of the following statements is TRUE about the sale of shirts?
Antara pernyataan berikut, yang manakah BENAR mengenai jualan baju itu ?

A The sale of long-sleeved shirts in March is 5 more than the sale in April.
Jualan baju lengan panjang pada bulan Mac adalah 5 helai lebih daripada jualan pada bulan April.

B The total number of short-sleeved shirts sold in 3 months are 100.
Jumlah jualan baju lengan pendek dalam 3 bulan ialah 100.

C The sale of long-sleeved shirts in April is 20 less than the sale in May.
Jualan baju lengan panjang pada bulan April adalah 20 helai kurang daripada jualan pada bulan Mei.

D The largest quantity of short-sleeved shirts sold in 3 months is April.
Kuantiti baju lengan pendek yang dijual dalam 3 bulan adalah paling banyak pada bulan April.

31. The pie chart in Diagram 31 shows the expenses of Hassan's monthly income.
Carta pai dalam Rajah 31 *menunjukkan perbelanjaan bagi pendapatan bulanan Hassan.*

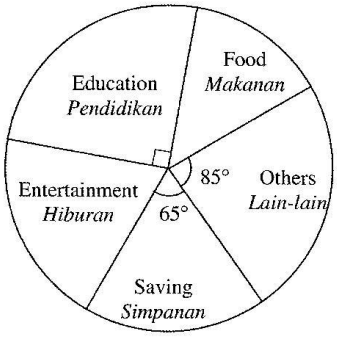


Diagram 31
Rajah 31

The total amount of money spent for entertainment and food are RM 1 800. Calculate Hassan's monthly income.
Jumlah wang yang dibelanjakan untuk hiburan dan makanan ialah RM 1 800. *Hitung pendapatan bulanan Hassan.*

A RM 2 700

B RM 3 600

C RM 4 500

D RM 5 400

32. Table 32 shows the score obtained by a group of students in a game.
Jadual 32 *menunjukkan markah yang dicapai oleh sekumpulan pelajar dalam satu permainan.*

Score *Markah*	Number of members *Bilangan ahli*
5	1
6	3
7	2
8	4

Table 32
Jadual 32

Determine the median score.
Tentukan markah median.

A 6.5

B 7

C 7.5

D 8

33. Diagram 33 shows a right cylindrical cooking oil container with base radius of 14 cm and the height of 20 cm.
Rajah 33 *menunjukkan sebuah bekas minyak masak berbentuk silinder tegak berjejari tapak* 14 cm *dan ketinggian* 20 cm.

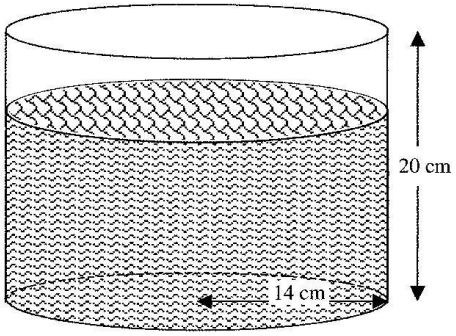


Diagram 33
Rajah 33

Calculate the volume, in cm^3, of the cooking oil in the container if it is three-quarter full.
Hitung isi padu, dalam cm^3, *bagi minyak masak dalam bekas berbentuk silinder jika diisi dengan tiga perempat penuh.*
(Use / *Guna* $\pi = \frac{22}{7}$)

A 12 320

B 9 240

C 6 160

D 3 080

34. Diagram 34 shows a scale drawing of a house. The rooms are rectangular. The scale used is 1: 300.
Rajah 34 *menunjukkan lukisan berskala sebuah rumah. Semua bilik berbentuk segi empat tepat. Skala yang digunakan ialah* 1: 300.

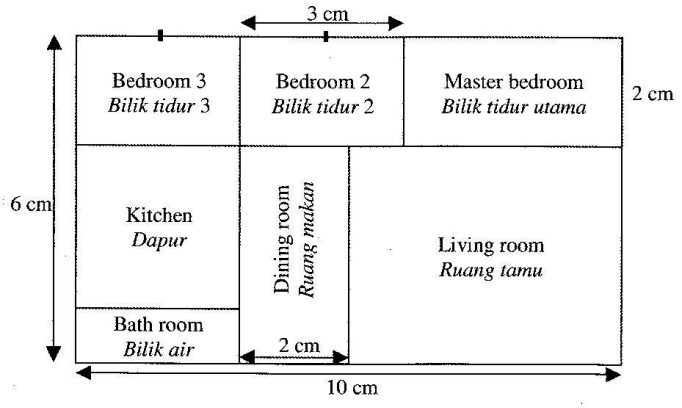


Diagram 34
Rajah 34

Calculate the area, in m^2, of the living room.
Kirakan luas, dalam m^2, *bagi ruang tamu.*

A 20

B 60

C 180

D 200

35. Table 35, shows the distance and time taken for a journey of four cars on a highway.
Jadual 35, menunjukkan jarak dan masa yang diambil oleh empat buah kereta untuk perjalanan di sebatang lebuhraya.

Cars *Kereta*	Distance (km) *Jarak (km)*	Time taken (hours) *Masa yang diambil (jam)*
Black *Hitam*	60	$\frac{1}{2}$
Red *Merah*	105	1
White *Putih*	250	2
Yellow *Kuning*	300	3

Table 35
Jadual 35

Which of the cars were drove more than the speed limit of 110 km/h?
Kereta manakah yang dipandu melebihi had laju 110 km/j?

A Black and Red
Hitam dan Merah

B Red and Yellow
Merah dan Kuning

C White and Black
Putih dan Hitam

D Yellow and White
Kuning dan Putih

36. Diagram 36 shows a trapezium.
Rajah 36 menunjukkan sebuah trapezium.

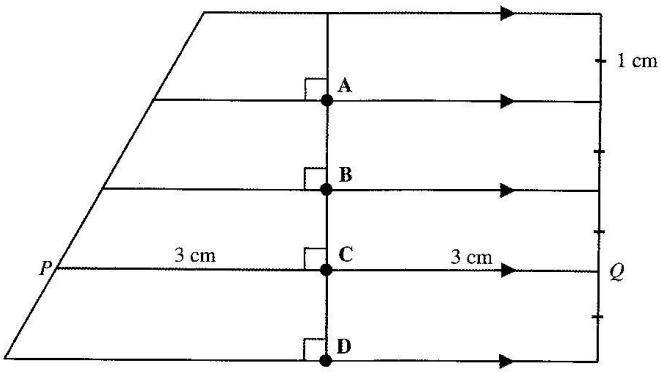


Diagram 36
Rajah 36

Which of the points marked **A, B, C** and **D** is equidistant from point *P* and point *Q*, and always 2 cm from line *PQ*.
Antara titik-titik yang bertanda **A, B, C** *dan* **D**, *yang manakah adalah sama jarak dari titik P dan titik Q, dan sentiasa berjarak 2 cm dari PQ.*

37. In Diagram 37, *KL* is a straight line and the distance is 5 units.
Dalam Rajah 37, KL ialah garis lurus dan jaraknya ialah 5 unit.

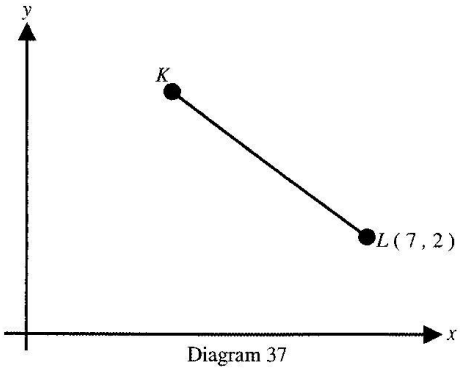


Diagram 37
Rajah 37

Find the coordinates of *K*.
Cari koordinat bagi K.

A (1 , 5)
B (2 , 3)
C (3 , 5)
D (3 , 7)

38. In Diagram 38, point K and point L are vertices of quadrilateral $KLMN$. Given the coordinates of point M and point N are (3, – 3) and (1 , 2) respectively.

Dalam Rajah 38, titik K dan titik L ialah bucu-bucu bagi sebuah sisi empat KLMN. Diberi koordinat titik M dan titik N masing-masing ialah (3, – 3) *dan* (1 , 2).

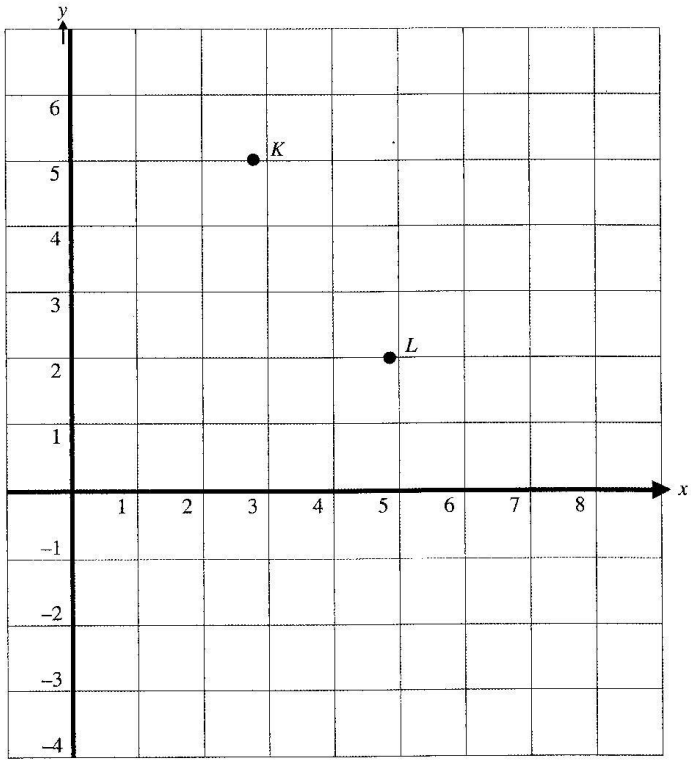


Diagram 38
Rajah 38

KLMN is a
KLMN ialah sebuah

A kite
lelayang

B square
segi empat sama

C trapezium
trapezium

D rhombus
rombus

39. In Diagram 39, L is the midpoint of straight line KM.
Dalam Rajah 39, *L ialah titik tengah garis lurus KM.*

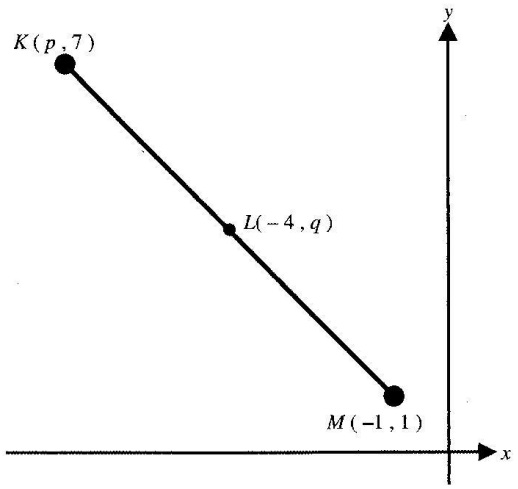


Diagram 39
Rajah 39

Find the value of p and q.
Cari nilai p dan q.

A $p = -5$, $q = 7$

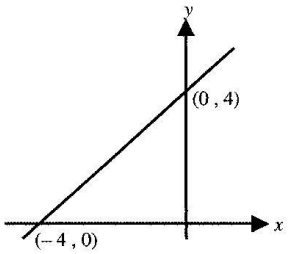
B $p = -5$, $q = 9$

C $p = -7$, $q = 4$

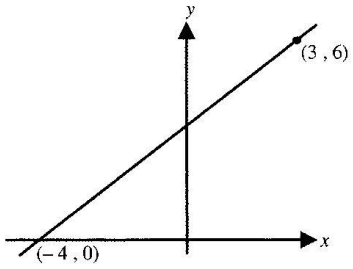
D $p = -7$, $q = 5$

40. Which of the following graphs does **not** represent the function $y = 4 + x$?
*Antara graf berikut, yang manakah **tidak** mewakili fungsi $y = 4 + x$?*

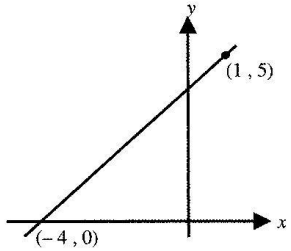
A



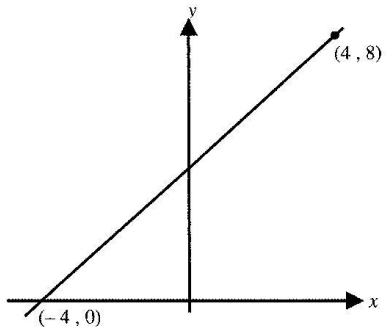
B



C



D



END OF QUESTION PAPER
KERTAS SOALAN TAMAT

INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This question paper consists of **40** questions.
   Kertas soalan ini mengandungi **40** *soalan.*

2. Answer **all** questions.
   Jawab **semua** *soalan.*

3. Each question is followed by four alternative answers, **A**, **B**, **C** or **D**. For each question, choose one answer only. Blacken your answer on the objective answer sheet provided.
   Tiap-tiap soalan diikuti oleh empat pilihan jawapan, iaitu **A**, **B**, **C** *dan* **D**. *Bagi setiap soalan, pilih satu jawapan sahaja. Hitamkan jawapan anda pada kertas jawapan objektif yang disediakan.*

4. If you wish to change your answer, erase the blackened mark that you have made. Then blacken the new answer.
   Jika anda hendak menukar jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.

5. The diagrams in the questions provided are not drawn to scale unless stated.
   Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.

6. A list of formulae is provided on pages 2 to 4.
   Satu senarai rumus disediakan di halaman 2 *hingga* 4.

7. You may use a non-programmable scientific calculator.
   Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.