SULIT
50/1
BAHASA INGGERIS
Kertas 1
Ogos 2010
1 1/4 JAM

MAJLIS PENGETUA SEKOLAH MALAYSIA
NEGERI PAHANG

PEPERIKSAAN PERCUBAAN PMR TAHUN 2010

MATEMATIK

Tingkatan 3

Kertas 1

Satu Jam Lima Belas Minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas soalan ini adalah dalam dwi bahasa.*

2. *Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu.*

3. *Calon dikehendaki membaca maklumat di halaman belakang kertas soalan ini*

Kertas ini mengandungi 14 halaman bercetak dan 2 halaman tidak bercetak

1 Find the lowest common multiple (LCM) of 18, 27 and 36.
Cari gandaan sepunya terkecil (GSTK) bagi 18, 27 dan 36.

A 84 B 96 C 108 D 132

2 A factory operates every day. The factory produces 2450 bulbs per day. In a particular week, 329 bulbs are found cracked. How many of the bulbs produced in that week are not cracked?
Sebuah kilang beroperasi setiap hari. Kilang itu menghasilkan 2450 biji mentol sehari. Dalam satu minggu tertentu, didapati bilangan mentol yang retak ialah 329 biji. Berapakah jumlah bilangan mentol yang dihasilkan dalam minggu itu tidak retak?

A 14 847 B 16 821 C 17 103 D 19 453

3 47,m,n and 61 are prime numbers arranged in ascending order. The value of m + n is
47,m,n dan 61 adalah nombor perdana yang disusun mengikut tertib menaik. Nilai m + n ialah

A 104 B 108 C 110 D 112

4 Syukur bought 150 durians. He managed to sell 45 durians on first day and 20% of remaining durians on second day. Calculate the total number of durians that Syukur has left.
Syukur membeli 150 biji durian. Dia menjual 45 biji durian pada hari pertama dan 20 % daripada baki durian dijual pada hari kedua. Hitung bilangan durian yang masih ada pada Syukur

A 21 B 75 C 84 D 85

5 Find the highest common factor (HCF) of 8, 20 and 32.
Cari factor sepunya terbesar bagi (FSTB) 8, 20 dan 32.

A 4 B 8 C 32 D 160

6 A class has 28 students. Each student pays RM 1.20 to the class fund. $\frac{9}{14}$ of the total class fund is used for teacher's day celebration. The balance of the class fund is

Sebuah kelas mempunyai 28 orang pelajar. Setiap pelajar membayar yuran kelas sebanyak RM 1.20. $\frac{9}{14}$ daripada yuran kelas itu digunakan untuk perayaan hari guru. Baki yuran kelas ialah

A RM 12.00 B RM 21.60 C RM 27.60 D RM 33.60

7 Find the value of x in the linear equation $10x - 3 = 12 - 5(x - 3)$
Cari nilai x dalam persamaan linear $10x - 3 = 12 - 5(x - 3)$

A -6 B 0 C 2 D 8

8 Tajudin painted two identical rooms and took $2\frac{1}{2}$ hours to paint each room. If he started painting the first room at 9.30 *a*.m and took 45 minutes break in between, at what time in the 24-hour system did he complete painting the second room?

Tajudin mengecat dua buah bilik yang serupa dan mengambil masa $2\frac{1}{2}$ *jam untuk mengecat setiap bilik. Jika dia mula mengecat bilik yang pertama pada pukul 9.30 pagi dan berehat selama 45 minit diantaranya, pada pukul berapakah dalam system 24-jam dia selesai mengecat bilik yang kedua?*

A 1430 B 1545 C 1515 D 1555

9 In Diagram 1, PQR and PST are straight lines.
Dalam Rajah 1, PQR dan PST ialah garis lurus.

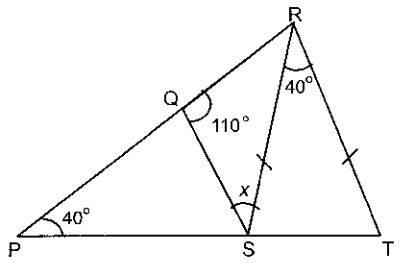


Diagram 1
Rajah 1

Find the value of x.
Cari nilai x

A 30° B 40° C 60° D 70°

10 Given $\frac{x}{y} = \frac{2}{5}$, the equivalent ratio of x:y is
Diberi $\frac{x}{y} = \frac{2}{5}$, *nisbah setara bagi x:y ialah*

A 0.2 : 1 B $\frac{1}{2} : \frac{1}{5}$ C 16 : 80 D $\frac{1}{2} : \frac{5}{4}$

11 240 stickers are divided between Aini and Ezzati in the ratio 5 : x . If Ezzati receives 140 stickers, the value of x is.
240 keping pelekat dibahagi antara Aini dan Ezzati dalam nisbah 5 : x . Jika Ezzati menerima 140 keping pelekat, nilai x ialah.

A 3 B 4 C 7 D 8

12 It is given that p : q = 13 : 7 and r : q = 3 : 2. Find the ratio of p : r.
Diberi bahawa p : q =13 : 7 dan r : q = 3 : 2. Cari nisbah p : r.

A 13 : 12 B 26 : 21 C 39 : 14 D 49 : 56

13 Which of the following geometrical solid is a cone?
Antara pepejal geometri berikut, yang manakah merupakan suatu kon?

A  B  C  D 

14 Diagram 2 shows three similar right circular cylindrical containers and a cuboid container.
Rajah 2 menunjukkan tiga buah bekas serupa berbentuk silinder tegak dan sebuah bekas berbentuk kuboid.

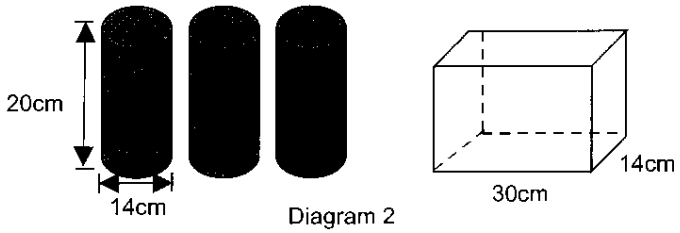


Diagram 2
Rajah 2

The three similar right cylindrical containers are fully filled with water. All the water from the cylindrical containers are poured into the cuboid container.
Tiga bekas serupa berbentuk silinder tersebut diisi penuh dengan air. Semua air dari bekas berbentuk silinder dituang ke dalam bekas berbentuk kuboid. Calculate the height , in cm, of the water in the cuboid container. Hitung tinggi, dalam cm, aras air dalam bekas berbenuk kuboid itu.

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

A 7.3 B 22 C 29.3 D 88

15 Diagram 3 shows a trapezium PQRST.
Rajah 3 menunjukkan sebuah trapezium PQRST.

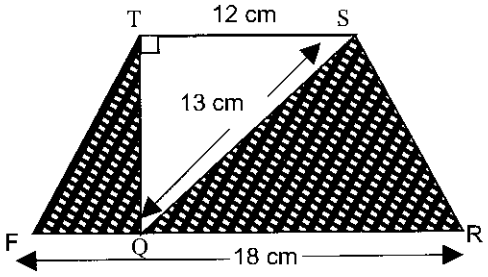


Diagram 3
Rajah 3

Find the area of shaded region.
Cari luas kawasan berlorek.

A 45 cm^2 B 75 cm^2 C 150 cm^2 D 390cm^2

16 Given that $3p = 4m^2 + 5$, hence m =
Diberi $3p = 4m^2 + 5$, maka m=

A $2\sqrt{3p-5}$ B $3\sqrt{2p-5}$ C $\frac{\sqrt{5-3p}}{2}$ D $\frac{\sqrt{3p-5}}{2}$

17 $\frac{2x + 6y}{p - q} \times \frac{p^2 - q^2}{x + 3y} =$

A $p - q$ B $2(p + q)$ C $2(p - q)$ D $\frac{2(x - 3y)}{p + q}$

18 Simplify $\left(16p^{-3} \times p^7\right)^{\frac{1}{2}}$

Ringkaskan. $\left(16p^{-3} \times p^7\right)^{\frac{1}{2}}$

A $4p^2$ B $16p^2$ C $4p^5$ D $16p^5$

19 $m^{10}p^3 \div m^2p =$

A $m^{12}p^4$ B $m^{12}p^2$ C m^8p^2 D m^5p^3

20 Given that $3^{n+1} = 81$, find the value of n.
Diberi $3^{n+1} = 81$, cari nilai n.

A 1 B 2 C 3 D 9

21 Diagram 4 shows a circle with centre O and a radius of 5 cm.
Rajah 4 menunjukkan sebuah bulatan berpusat O dan berjejari 5 cm.

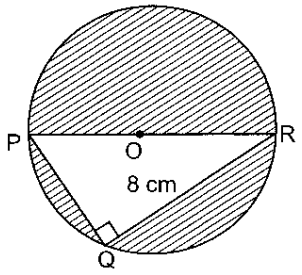


Diagram 4
Rajah 4

PR is a diameter of the circle and QR= 8 cm. Calculate the area in cm^2 of the shaded region.
PR ialah diameter bulatan itu dan QR = 8 cm. Hitung luas, dalam cm^2 kawasan yang berlorek.

A $25\pi - 24$ B $25\pi - 48$ C $10\pi - 24$ D $10\pi - 48$

22 In an assessment test, Mary's mark is twice as Anne's mark. The sum of their marks is 183. Calculate Mary's marks.
Dalam suatu ujian penilaian, markah Mary adalah dua kali ganda markah Anne. Jumlah markah mereka adalah 183. Hitung markah Mary.

A 61 B 92 C 122 D 153

23 Diagram 5 shows four squares of the same size. Y is the locus of a point which moves such that its distance from point P and point R is always constant.
Rajah 5 menunjukkan empat segiempat sama yang sama saiz. Y ialah lokus bagi suatu titik yang bergerak supaya jarak dari titik P dan titik R sentiasa berkeadaan tetap.

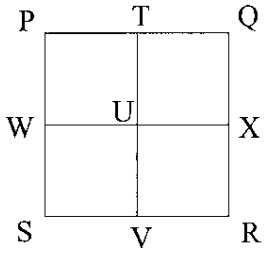
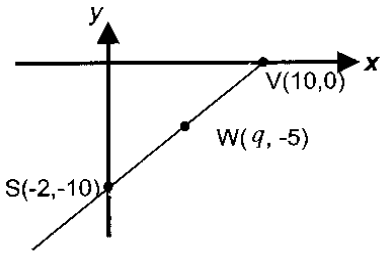


Diagram 5
Rajah 5

Which of the following lines is the locus of Y?
Antara berikut yang manakah lokus bagi Y?

A PR B WX C SQ D TV

24 In Diagram 6, W is the midpoint of the straight line SV
Dalam Rajah 6, W ialah titik tengah bagi garis lurus SV



Find the value of q
Carikan nilai q

A - 4 B - 1 C 4 D 6

25 Diagram 7 shows a circle with centre O and radius of 12 cm.
Rajah 7 menunjukkan sebuah bulatan pusat O berjejari 12 cm.

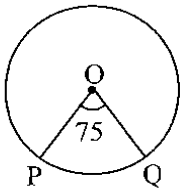


Diagram 7
Rajah 7

Calculate the length, in cm, of the major arc PQ.
Hitungkan panjang, dalam cm, lengkok major PQ

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

A $15\frac{5}{7}$ B $29\frac{6}{7}$ C $59\frac{5}{7}$ D $358\frac{2}{7}$

26 Diagram 8 shows the scores obtained by 15 students in a competition.
Rajah 8 menunjukkan skor yang diperolehi oleh 15 pelajar dalam suatu pertandingan.

1, 2, 4, 3, 1, 2, 4, 1, 2, 3, 1, 1, 3, 1, 3

Diagram 8
Rajah 8

Find the mode.
Cari nilai mod.

A 1 B 2 C 3 D 4

27 Table 1 shows the distribution of the scores of competitors in a game.
Jadual 1 menunjukkan taburan skor bagi peserta dalam sebuah permainan.

Score *Skor*	1	2	3	4	5
Frequency *Kekerapan*	7	13	x	4	1

Table 1
Jadual 1

Given that the mean score is 2.3, find the value of x
Diberi bahawa min skor adalah 2.3, cari nilai x.

A 2 B 5 C 7 D 21

28 Table 2 shows the number of greeting cards sold in a bookshop.
Jadual 2 menunjukkan bilangan kad ucapan yang dijual di dalam sebuah kedai buku.

Number of cards *Bilangan kad*	1	2	3	4	5	6
Frequency *Kekerapan*	5	8	12	7	10	8

Table 2
Jadual 2

The median is
Nilai median ialah

A 3 B 3.5 C 4 D 5

29 Diagram 9 shows a rectangle PQST. PUT and QRS are two identical semicircles .
Rajah 9 menunjukkan sebuah segi empat tepat PQST. PUT dan QRS ialah dua buah semibulatan yang serupa.

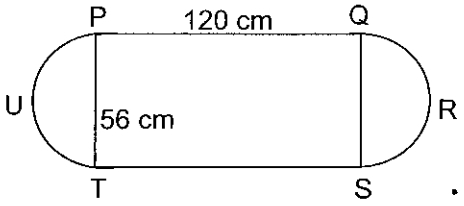


Diagram 9
Rajah 9

Calculate the perimeter in cm, of the whole diagram.
Hitungkan perimeter dalam cm, bagi seluruh rajah itu.
(Use/ *Guna* $\pi = \frac{22}{7}$)

A 164 B 208 C 416 D 440

30 Diagram 10 shows five regular octagon with sides 4 cm.
Rajah 10 menunjukkan lima oktagon sekata yang bersisi 4 cm.

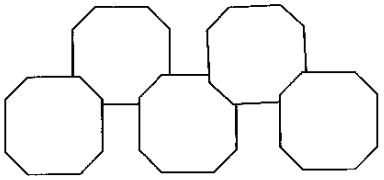


Diagram 10
Rajah 10

Calculate the perimeter, in cm, of the whole diagram.
Hitung perimeter, dalam cm, bagi keseluruhan rajah tersebut.

A 128 cm B 140 cm C 160 cm D 200 cm

31 Diagram 11 shows two points, K an L in a Cartesian plane.
Rajah 11 menunjukkan dua titik K dan L pada satu satah Cartesan.

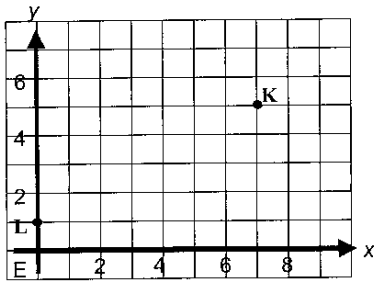


Diagram 11
Rajah 11

Calculate the distance between the two points.
Hitungkan jarak antara dua titik itu.

A $\sqrt{32}$ unit B $\sqrt{65}$ unit C $\sqrt{84}$ unit D $\sqrt{102}$ unit

32 In the Diagram 12, XOZ is an equilateral triangle. OXYZ is a major sector with centre O.
Dalam Rajah 12 , XOZ ialah sebuah segi tiga sama sisi. OXYZ ialah sebuah sektor berpusat O.

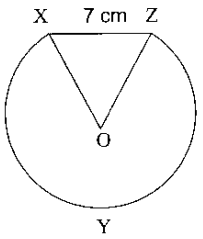


Diagram 12
Rajah 12

Calculate the area, in cm^2, of sector OXYZ
Hitung luas, dalam cm^2, sektor OXYZ
(Use/*Guna* $\pi = \frac{22}{7}$)

A $128\frac{1}{3}$ B $106\frac{1}{3}$ C $91\frac{2}{3}$ D $36\frac{2}{3}$

33 Diagram 13 is a pictogram showing the number of hand phones sold in four month.
Rajah 13 ialah pictogram menunjukkan bilangan telefon bimbit yang dijual dalam empat bulan.

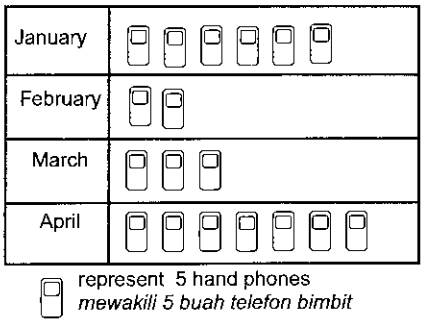


Diagram 13
Rajah 13

Which of the following statement is true?
Antara pernyataan berikut, yang manakah benar?

A The difference in number of hand phones sold in March and April is 4 units.
Beza antara jualan telefon bimbit dalam bulan Mac dan April ialah 4 unit

B The lowest monthly sale was 10 units.
Jualan bulanan paling rendah ialah 10 unit.

C The sales in March was 45 units
Jualan dalam bulan Mac ialah 45 unit.

D The total number of hand phones sold in first two months was 8 units.
Jumlah jualan telefon bimbit dijual dalam dua bulan pertama ialah 8 unit.

34 Diagram 14 is a bar chart showing the number of cakes sold at five bakeries per day.
Rajah 14 ialah carta palang yang menunjukkan bilangan kek yang dijual oleh lima kilang roti setiap hari.

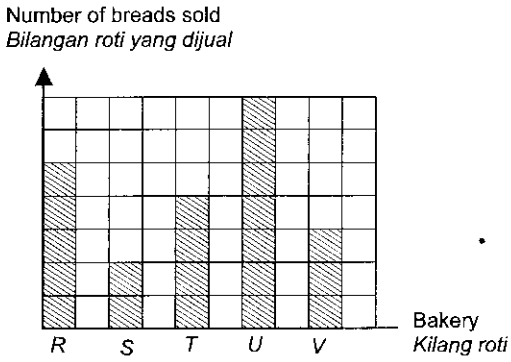


Diagram 14
Rajah 14

The difference between the highest and the lowest number of breads sold is 100.
Determine the number of breads sold by bakery T.
Beza di antara bilangan roti yang dijual paling banyak dan dengan paling sedikit ialah 100.
Tentukan bilangan roti yang dijual oleh kilang roti T.

A 20 B 40 C 60 D 80

35 Diagram 15 shows a geometrical construction.
Rajah 15menunjukkan suatu pembinaan geometri.

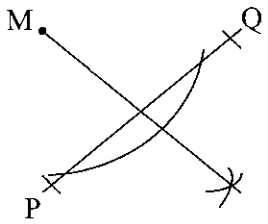


Diagram 15
Rajah 15

It shows the construction of
Ia menunjukkan pembinaan bagi

A a parallel line to PQ
satu garis yang selari dengan garis PQ.

B a right angle at point
M.satu sudut tegak pada titik M.

C the perpendicular bisector of line PQ.
pembahagi dua sama serenjang bagi garis PQ.

D the perpendicular line from point M to PQ
garis serenjang dari titik M ke PQ.

36 In Diagram 16, PQRSTUV is a pentagon. QRS and PUV are straight lines.
Dalam Rajah 16, PQRSTUV ialah sebuah pentagon. QRS and PUV ialah garis lurus.

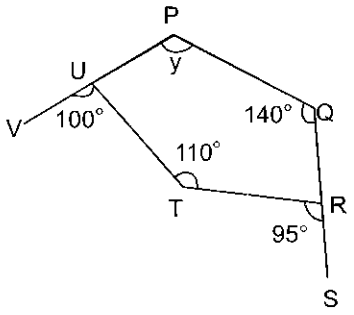


Diagram 16
Rajah 16

Find the value of y.
Cari nilai y.

A 100° B 105° C 125° D 145°

37 Rina drives her car from P to Q at an average speed of 90 km/h for 2 hours 40 minutes. She continues her journey for a distance of 100 km from Q to R and takes 1 hour 20 minutes. Calculate the average speed, in km/h, for the journey from P to R.

Rina memandu keretanya dari P ke Q dengan purata laju 90 km/j selama 2 jam 40 minit. Dia meneruskan perjalanannya sejauh 100 km dari Q ke R dan mengambil masa 1 jam 20 minit. Hitung purata laju, dalam km/j, perjalanan dari P ke R.

A 84 B 85 C 95 D 112

38 In Diagram 17, PQRS is a circle with centre O. POR is the diameter of the circle.
Dalam Rajah 17, PQRS ialah sebuah bulatan berpusat O. POR ialah diameter bulatan tersebut.

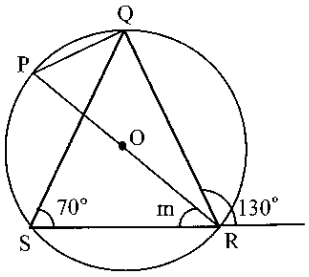


Diagram 17
Rajah 17

The value of m is
Nilai m ialah

A 20° B 30° C 50° D 70°

39 Diagram 18 shows two right-angled triangle with PTR and SRQ as straight lines .
Rajah 18 menunjukkan dua segitiga bersudut tepat dengan PTR dan SRQ adalah garis lurus.

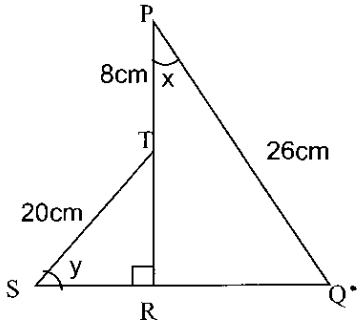


Diagram 18
Rajah 18

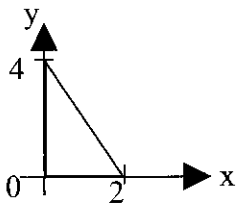
Given that cos x = $\frac{12}{13}$ determine sin y.

Diberi kos x = $\frac{12}{13}$ *, tentukan sin y.*

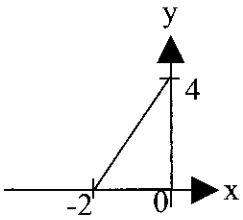
A $\frac{10}{13}$ B $\frac{4}{5}$ C $\frac{5}{6}$ D $\frac{12}{13}$

40 Which of the following point is the graph for the function y= 4 - 2x?
Antara graf yang manakah mewakili y = 4 – 2x?

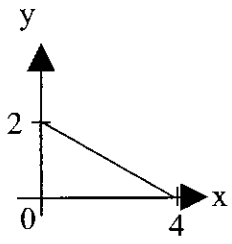
A



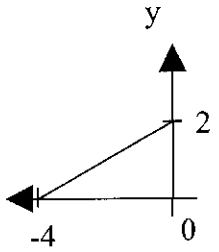
B



C



D



END OF QUESTION PAPER
KERTAS SOALAN TAMAT

Marking scheme for Mathematics Paper 1

Trial PMR 2010

No	Answer	No	Answer
1	C	21	A
2	B	22	C
3	D	23	C
4	C	24	C
5	A	25	C
6	A	26	A
7	C	27	B
8	C	28	B
9	B	29	C
10	D	30	A
11	C	31	B
12	B	32	A
13	C	33	B
14	B	34	D
15	A	35	D
16	D	36	C
17	B	37	B
18	A	38	B
19	C	39	B
20	C	40	A

SULIT
50/2
MATHEMATICS
Kertas 2
September 2010
1 3/4 JAM

NO KAD PENGENALAN											

ANGKA GILIRAN :	

MAJLIS PENGETUA SEKOLAH MALAYSIA
NEGERI PAHANG

PEPERIKSAAN PERCUBAAN PMR TAHUN 2010

MATHEMATICS

Tingkatan 3

Kertas 2

Satu Jam Empat Puluh Lima Minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Tulis nombor **kad pengenalan** dan **angka giliran** anda pada petak yang disediakan.*
2. *Kertas soalan ini adalah dalam dwibahasa.*
3. *Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu.*
4. *Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam bahasa Inggeris atau bahasa Melayu.*

Untuk Kegunaan Pemeriksa		
Soalan	Markah Penuh	Markah Diperolehi
1	2	
2	2	
3	3	
4	3	
5	3	
6	2	
7	2	
8	3	
9	5	
10	5	
11	3	
12	3	
13	3	
14	2	
15	3	
16	2	
17	3	
18	3	
19	4	
20	4	
TOTAL	**60**	

Kertas ini mengandungi 17 halaman bercetak dan 3 halaman tidak bercetak

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 / *Teorem Pithagoras:*

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

SHAPES 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 = πr^2

7 Curved surface area of cylinder = $2\pi r h$

8 Surface area of sphere = $4\pi r^2$

9 Volume of right prism = cross sectional area x length

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

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

16 $$\frac{\text{arc length}}{\text{circumference of circle}} = \frac{\text{angle subtended at centre}}{360^o}$$

17 $$\frac{panjang\ lengkok}{lilitan\ bulatan} = \frac{sudut\ pusat}{360^o}$$

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

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

Answer all questions.
Jawab semua soalan.

1. Calculate the value of -19 + (-20) ÷ 4
Hitung nilai bagi -19 + (-20) ÷ 4

Answer / *Jawapan:* [2 marks]

1
2

2. Calculate the value of $\frac{(-3)\times 1.25}{0.5}$

Hitung nilai bagi $\frac{(-3)\times 1.25}{0.5}$

Answer / *Jawapan:* [2 marks]

2
2

3. (a) Find the value of $\sqrt[3]{-125}$
Cari nilai bagi $\sqrt[3]{-125}$

(b) Calculate the value of $(25-\sqrt{529})^3$
Hitung nilai bagi $(25-\sqrt{529})^3$

Answer / *Jawapan:* [3 marks]

(a)

(b)

3
3

4. In Diagram 4, PQRS is a rectangle.
Dalam Rajah 4, PQRS ialah sebuah sisiempat.

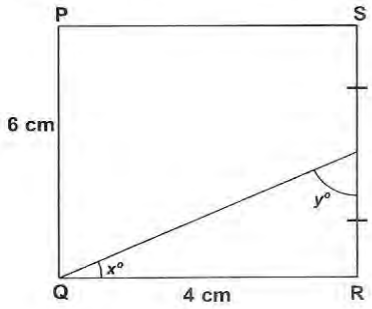


Diagram 4
Rajah 4

Find the value of
Cari nilai bagi

(a) sin x.
sin x.

(b) tan y
tan y [3 marks]

Answer / *Jawapan*:

(a)

(b)

4

3

5. Diagram 5, shows two right-angled triangles, ABE and BCD.
Rajah 5, menunjukkan dua buah segitiga bersudut tegak,ABE dan BCD.

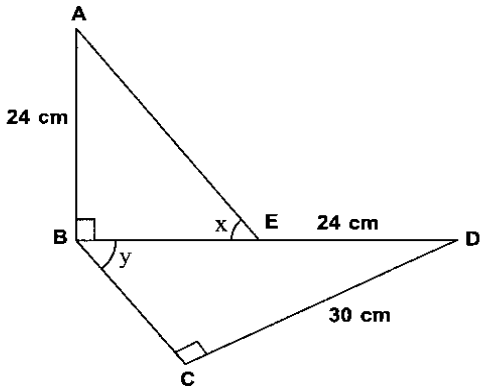


Diagram 5
Rajah 5

Given that BED is a straight line and $\cos x^o = \frac{5}{13}$.

Diberi bahawa BED ialah garis lurus dan $\cos x^o = \frac{5}{13}$.

(a) Calculate the length, in cm, of BED.
Hitung panjang, dalam cm, bagi BED

(b) Find the value of $\sin y^o$.
Cari nilai bagi $\sin y^o$.

Answer / *Jawapan:* [3 marks]

(a)

(b)

5

3

6. Diagram 6 in the answer space shows a pentagon A. A'is the image of A under reflection K.

Rajah 6 di ruang jawapan menunjukkan sebuah pentagon A. A' imej bagi A di bawah pantulan K.

(a) On the diagram in the answer space, draw the axis of reflection.
Pada rajah diruang jawapan, lukis dan nyatakan persamaan bagi paksi pantulan tersebut.

(b) State the equation of the axis of the reflection.
Nyatakan persamaan bagi paksi pantulan itu.

Answer / *Jawapan:* [2 marks]

(a)

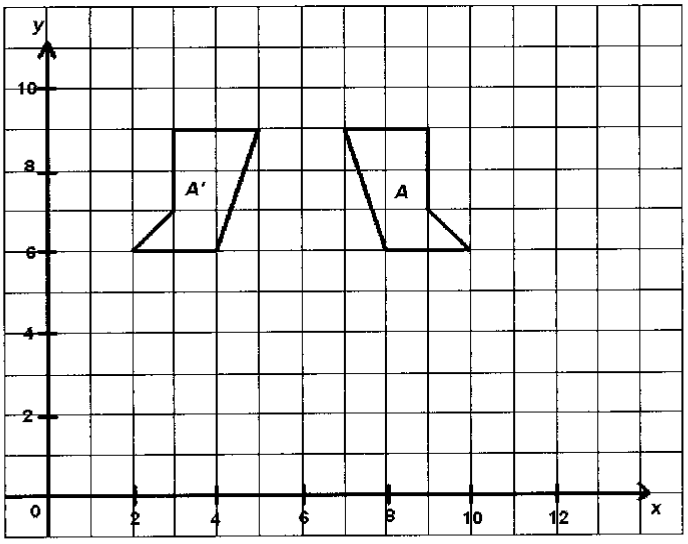


Diagram 6
Rajah 6

6

(b)

2

7. Diagram 7 shows two triangles. Δ J'K'L' is the image of Δ JKL under a rotation of 180° about the centre C.

Rajah 7 menunjukkan dua segitiga. Δ J'K'L' ialah imej bagi Δ JKL di bawah satu putaran pada pusat C melalui 180°.

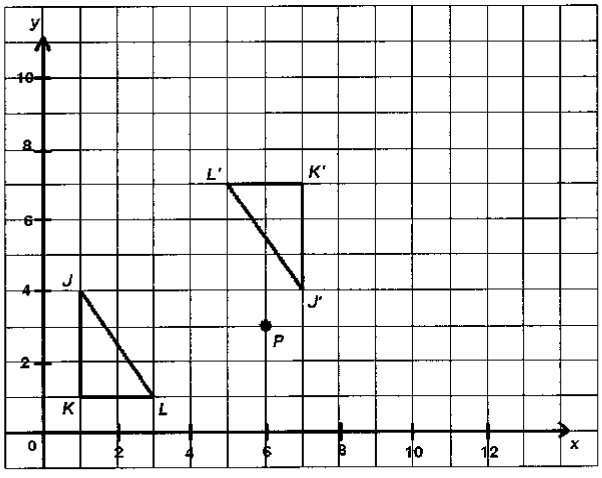


Diagram 7
Rajah 7

(a) Mark C in the graph.
Tandakan C pada graf.

(b) State the coordinate of image of point P under the translation of $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$.

Nyatakan koordinat imej bagi titik P di bawah translasi $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$.

[2 marks]

Answer/*Jawapan:*

(b)

7

2

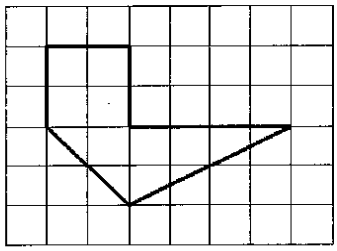
---

8. Diagram 8 shows polygon R drawn on a grid of equal square with sides of 1 unit.
Rajah 8 menunjukkan poligon R yang dilukis pada grid segiempat sama bersisi 1 unit.

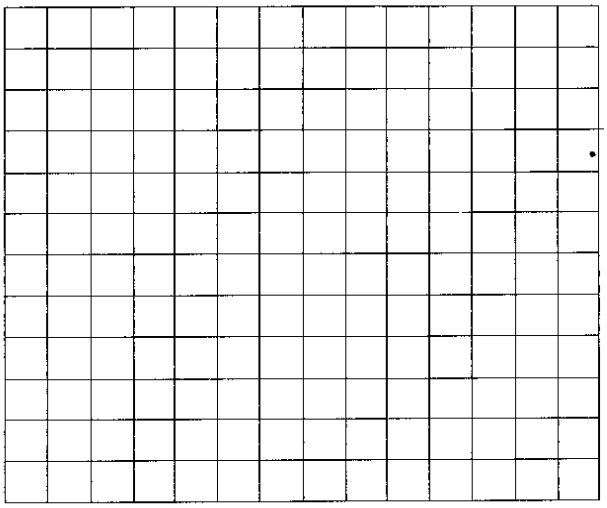
Redraw polygon R with scale 1 : $\frac{1}{2}$ on the grid in the answer space.

Lukis semula polygon T dengan menggunakan skala 1 : $\frac{1}{2}$ [3 marks]

Diagram 8
Rajah 8



Answer / *Jawapan:*



8

3

9. (a) Diagram 9(a) shows a square WXYZ
Rajah 9(a) menunjukkan sebuah segiempat sama WXYZ.

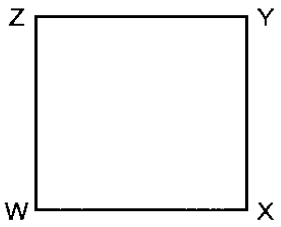


Diagram 9(a)
Rajah 9(a)

J is a moving point in the square such that it is always equidistant from the straight lines XW and XY. By using the letters in the diagram, state the locus of J.
J ialah titik yang bergerak dengan keadaan jaraknya sentiasa sama dari garis lurus XW dan XY. Dengan menggunakan huruf abjad pada rajah itu, nyatakan lokus J itu.

(b) Diagram 9(b) in the answer space shows a regular hexagon ABCDEF. K and L are two moving points in the hexagon.
Rajah 9(b) di ruang jawapan menunjukkan sebuah polygon sekata ABCDEF. K dan L ialah dua titik yang bergerak dalam rajah itu.
On Diagram 7, draw
Pada rajah 7, lukis

(i) the locus of K such that KD = DE.
lokus bagi K dengan keadaan KD = DE.

(ii) the locus of L such that it is equidistant from point B and point F.
lokus bagi L dengan keadaan L sentiasa berjarak sama dari titik B dan titik F.

(c) Hence, mark with the symbol ⓧ the intersection of the locus of K and the locus of L.
Seterusnya, tandakan dengan symbol ⓧ kedudukan bagi persilangan lokus K dan lokus L itu.

[5 marks]

Answer / *Jawapan:*

(a)

(b) (i), (ii)

(c)

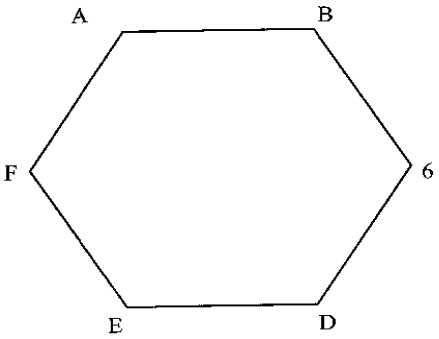


Diagram 9(b)
Rajah 9(b)

9

5

10. Diagram 10 shows a quadrilateral PQRS .
Rajah 10 menunjukkan sebuah sisiempat PQRS.

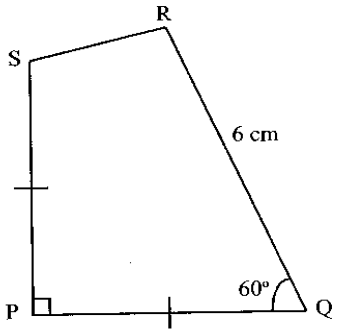


Diagram 10
Rajah 10

(a) Using only a ruler and a pair of compasses, construct Diagram 10 using the measurements given,begining from the straight line PS provided in the answer space.
Dengan menggunakan pembaris dan jangka lukis sahaja, bina rajah 10 mengikut ukuran yang diberi, mula dengan garis lurus PS yang disediakan di ruang jawapan.

(b) Construct the perpendicular line from point P to the line QR.
Binakan garis yang berserenjang dari titik P ke garis lurus QR

(c) Based on your construction, measure the length, in cm, of the perpendicular distance from point P to line QR.
Berdasarkan rajah yang dibin), ukurkan jarak serenjang, dalam cm, dari titik P ke garis QR.

[5 marks]

Answer / Jawapan:

10

5

(c)

11. Express $\frac{4}{6k} - \frac{2k-6}{12k^2}$ as a single fraction in its simplest form.

Ungkapkan $\frac{4}{6k} - \frac{2k-6}{12k^2}$ *sebagai satu pecahan tunggal dalam bentuk termudah.*

Answer / *Jawapan:* [3 marks]

11

3

12. Factorise completely each of the following expressions:
Faktorkan selengkapnya tiap-tiap ungkapan berikut:

(a) $3m - 12mn$

(b) $5h^2 - 4(h^2 + 1)$

Answer / Jawapan: [3 marks]

(a)

(b)

12

3

13. Expand each of the following expressions:
Kembangkan tiap-tiap ungkapan berikut:

(a) $-4x(x - y)$

(b) $(2x - y)(x + 2y)$

Answer / *Jawapan*: [3 marks]

(a)

(b)

13

3

14. Given $p = \frac{-3xy^2}{4}$, express y in terms of x and p.

Diberi, $p = \frac{-3xy^2}{4}$, *ungkapkan y dalam sebutan x and p.* [2 marks]

Answer / *Jawapan:*

14

2

15. Solve each of the following linear equations:
Selesaikan tiap-tiap persamaan linear berikut:

(a) $8x - 5 = 19$

(b) $\frac{4y-1}{1+3y} = \frac{3}{4}$ [3 marks]

Answer / Jawapan:

(a)

(b)

15

3

16. Find the value of $3^{-5} \div 3^{-2} \times 3^4$
Cari nilai bagi $3^{-5} \div 3^{-2} \times 3^4$ [2 mark]

Answer/*Jawapan:*

16
2

17. Simplify $(mn^{-1})^3 \div m^2$
Permudahkan $(mn^{-1})^3 \div m^2$ [3 marks]

Answer/Jawapan:

17
3

18. List all the integer values of x which satisfy both the inequalities $\frac{x}{2} + 1 \geq 3$ and $20-x > 12$
Senaraikan semua nilai integer x yang memuaskan kedua-dua ketaksamaan $\frac{x}{2} + 1 \geq 3$ *dan* $20-x > 12$ [3 marks]

Answer/Jawapan:

18
3

19. Table 19 shows the sales of drinks at a stall over a period of five days.
Jadual 19 menunjukkan hasil jualan minuman di sebuah gerai dalam tempoh lima hari.

Day *hari*	**Monday** *Isnin*	**Tuesday** Selasa	**Wednesday** Rabu	**Thursday** Khamis	**Friday** Jumaat
Sales *Hasil jualan*	RM250	RM300	RM250	RM650	RM400

Table 19
Jadual 19

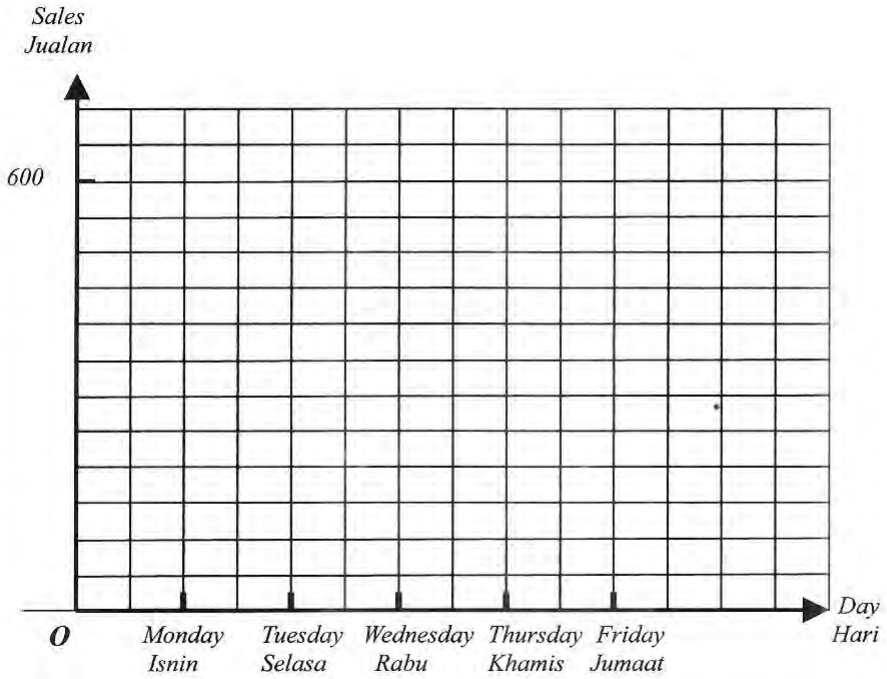
(a) State the mode of sales.
Nyatakan mode bagi jualan.

(b) Hence, represent all the data by drawing a line graph in the answer space.
Seterusnya, wakilkan semua data itu dengan melukis graf garis pada ruang jawapan. [4 marks]

Answer/*Jawapan:*

(a)

(b)



19

4

20. Table 20 shows the values of two variables x and y of a function.
Jadual 20 menunjukkan nilai-nilai dua pembolehubah, x dan y, bagi suatu fungsi.

x	-3	-2	-1	0	1	2	3
y	-41	-7	3	1	-1	9	43

Table 20
Jadual 20

The x-axis and the y-axis are provided on the graph paper 0n page 22.
Paksi-x dan paksi-y telah disediakan pada kertas graf di halaman 22.

(a) By using the scale 2 cm to 10 unit on y-axis, complete the y-axis
Dengan menggunakan skala 2 cm kepada 10 unit, lengkap dan paksi-y itu.

(b) Based on table 20, plot the points on the graph paper.
Berdasarkan Jadual 20, plot titik-titik pada kertas graf itu.

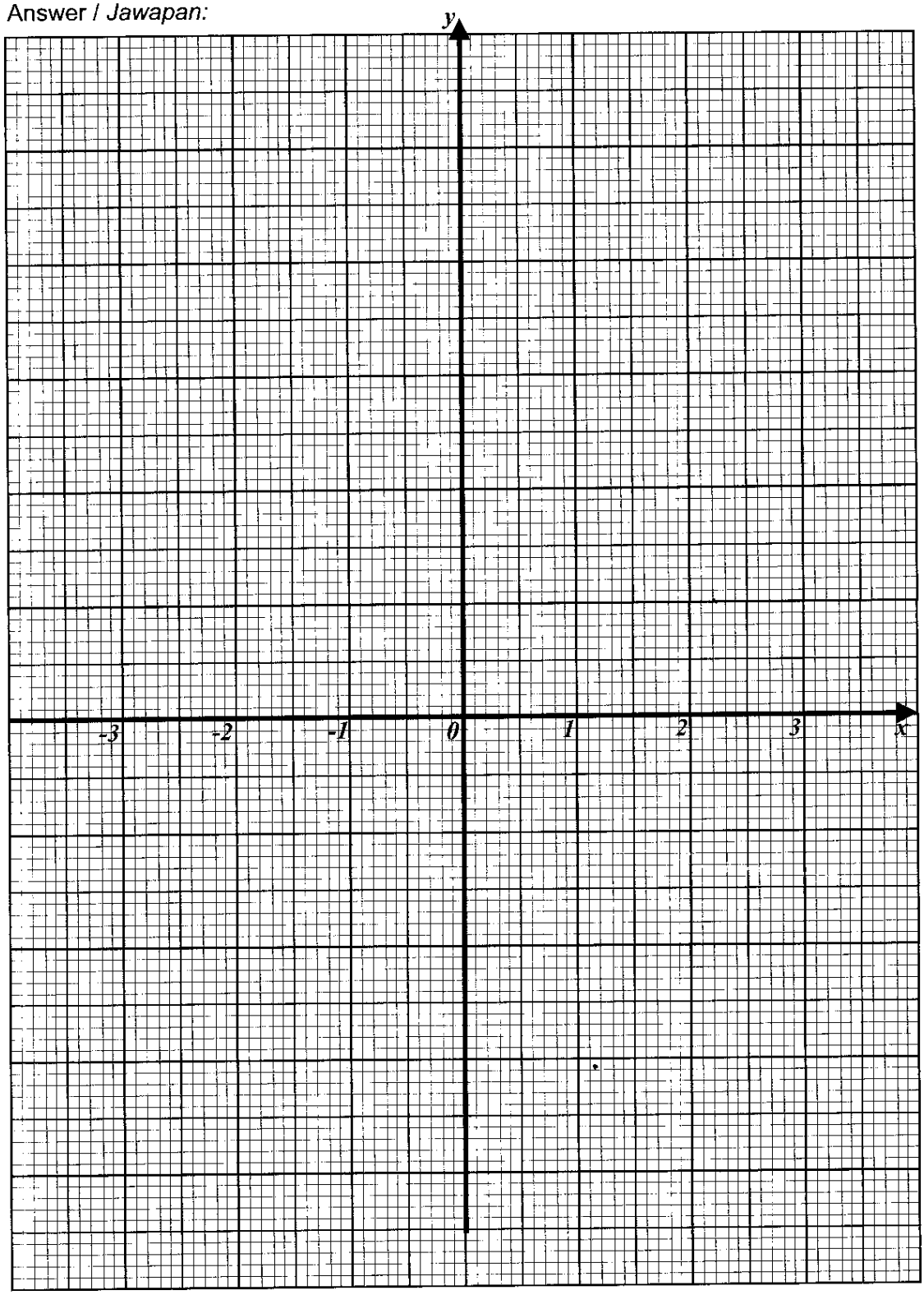
(c) Hence, draw the graph of the function.
Seterusnya, lukis graf fungsi itu.

[4 marks]

20

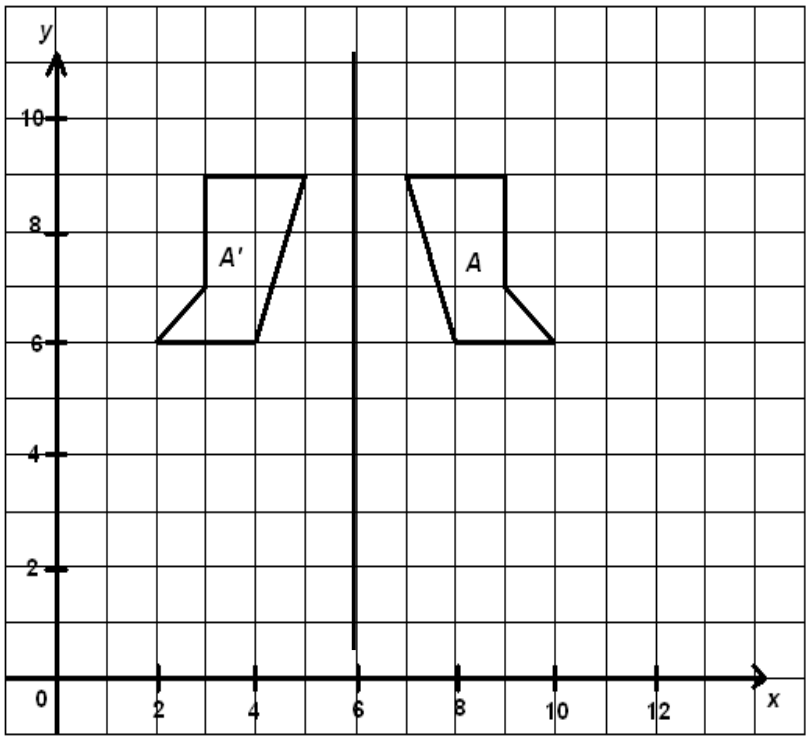
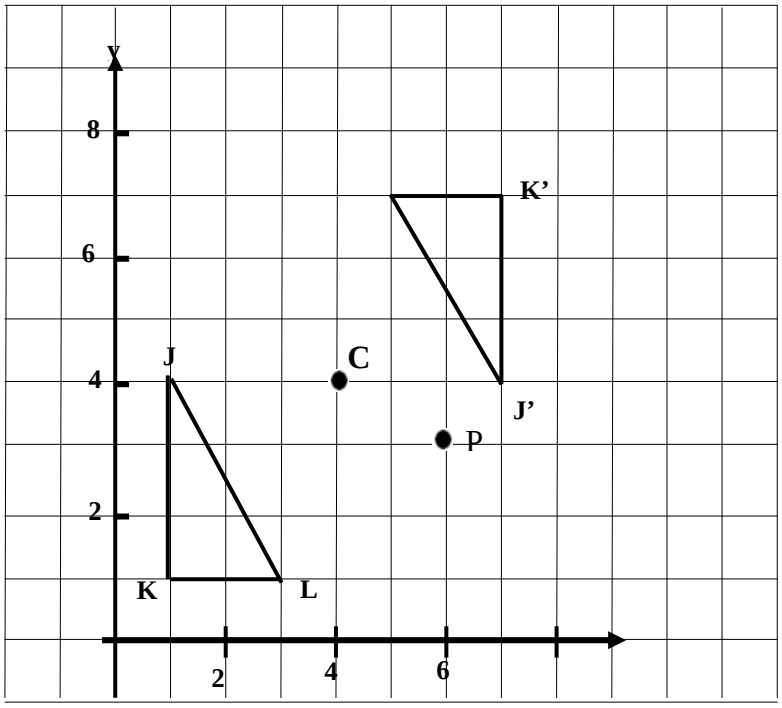
4

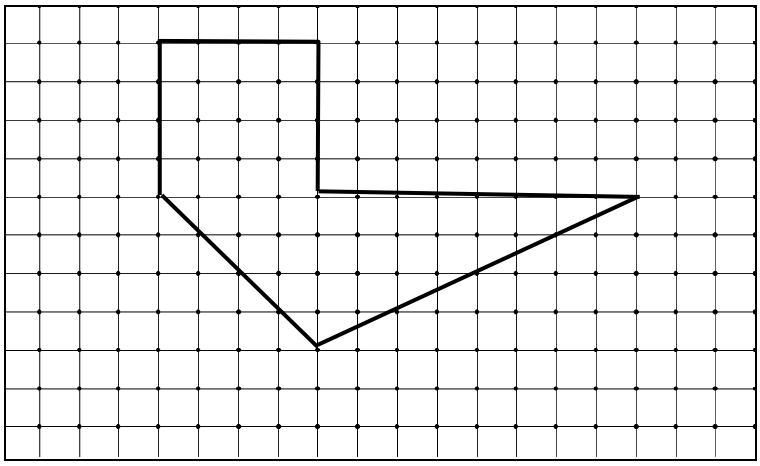
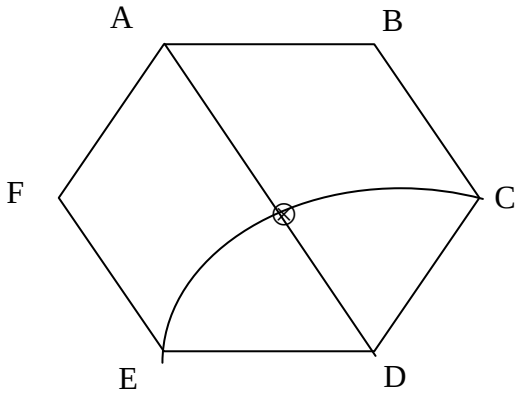
Answer / *Jawapan:*



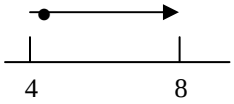
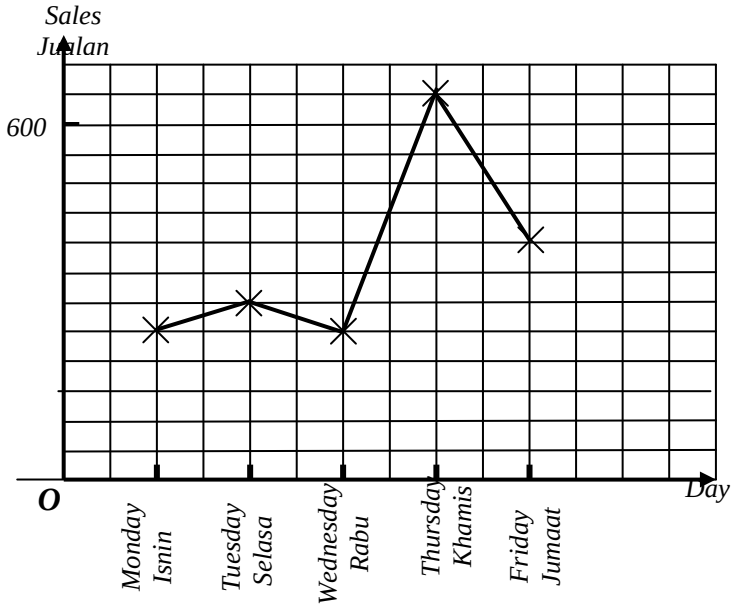
\PEPERIKSAAN PERCUBAAN TAHUN 2010
TINGKATAN 3
SKEMA MATEMATIK KERTAS 2

Bil	Skema	
1	-5 or 5 -24	K1 N1
2	-3.75 or -6 or 2.5 - 7.5	K1 NI
3	(a) -5 (b) 23 or 2 8	P1 K1 N1
4	(a) 3 or 5 seen $\frac{3}{5}$ (b) $\frac{4}{3}$	P1 P1 P1
5	5 or 10 seen (a) 34 (b) $\frac{30}{34}$ or $\frac{15}{17}$	K1 N1 P1

6	 reflection at x = 6	correct axis of symmetry drawn - P1 P1
7	 (b) (3,5)	Mark the centre C correctly – P1 Note: Award P1 if i) Correctly C without dotted. P1

8		All sides correctly drawn - P3 4 sides correct –P2 1 sides correct – P1
9	(a) XZ Award P1- The straight line XZ drawn in the diagram. (b) (i), (ii) (c)  	P2 Locus K correctly drawn – P1 Locus L correctly drawn – P1 Mark intersection correctly – P1
10	(a) Construct 90^0 and draw line PQ with arc SP = PQ - P1 Construct 60^0 and arc QR = 6cm -P1 Complete the diagram -P1 (b) Arc on QR and perpendicular line from P - P1 (c) $3.5 \pm 0.1cm$	

11	$\frac{8k}{12k^2} - \frac{2k-6}{12k^2}$ or equivalent $\frac{6k+6}{12k^2}$ or equivalent $\frac{k+1}{2k^2}$	K1 K1 N1
12	(a) $3m(1-4n)$ (b) (h^2-4) $(h+2)(h-2)$	P1 K1 N1
13	(a) $-4x^2+4xy$ (b) $2x^2+4xy-xy-2y^2$ $2x^2+3xy-2y^2$	P1 K1 N1
14	$4p = -3xy^2$ $y = \sqrt{\frac{4p}{-3x}}$	K1 N1
15	(a) $x = 3$ (b) $16y - 9y = 3 + 4$ or equivalent $y = 1$	P 1 K1 N1

16	$3^{-5-(-2)+4}$ or $-5-(-2)+4$ or 3^1 3	K1 N1
17	m^3n^{-3} m^{3-2} or m^1 or m mn^{-3} or $\frac{m}{n^3}$	K1 K1 N1
18	$x \geq 4$ $x < 8$ Award K2 for $4 \leq x < 8$ or  4, 5, 6, 7	K1 K1 N1
19	(a) RM 250 (b)  	P1 All 5 points correctly plotted – P2 Note: Award P1 for 3 to 4 points correctly plotted Line graph completely drawn – N1

20	complete the y-axis and uniform All 7 points are plotted correctly Notes : Award K1 for 6 or 5 points correctly plotted Smooth curve passes through all the correct points	K1 K2 N1