



MODUL PINTAS (MP)
TINGKATAN 5, 2017

1449/1

MATHEMATICS

Kertas 1
September

$1\frac{1}{4}$ jam

Satu jam lima belas minit

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

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

Kertas peperiksaan ini mengandungi 32 halaman bercetak.

1 Round off 0.3057 correct to three significant figures.

Bundarkan 0.3057 betul kepada tiga angka bererti.

A 0.30

B 0.31

C 0.305

D 0.306

2 $37\,000 + 2.9 \times 10^3 =$

A 3.41×10^4

B 3.99×10^4

C 3.41×10^5

D 3.99×10^5

3 $\frac{0.0544}{(4 \times 10^{-3})^3} =$

A 1.36×10^{-11}

B 8.50×10^{-5}

C 8.50×10^5

D 1.36×10^7

- 4 Diagram 1 shows a water container, in the shape of a cylinder, with the height of 35 cm and diameter 20 cm. It is filled with water.

Rajah 1 menunjukkan sebuah bekas air berbentuk silinder, dengan tinggi 35 cm dan diameter 20 cm. Ia diisi dengan air.

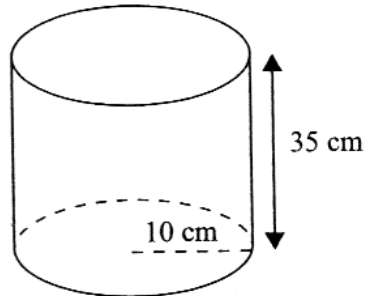


Diagram 1
Rajah 1

If 25% of the water container has been filled with water, how much volume of water is needed to fill up the water container completely?

[Given $\pi = \frac{22}{7}$]

Jika 25% daripada bekas air tersebut telah diisi dengan air, berapakah isi padu air yang perlu diisi lagi bagi memenuhi bekas air tersebut?

[Diberi $\pi = \frac{22}{7}$]

- A 8.25×10^2
 B 2.75×10^3
 C 8.25×10^3
 D 1.10×10^4
- 5 It is given that $304_8 = 12XY_5$, where X and Y are two digits in the number in base five. Find the value of X and of Y .

Diberi bahawa $304_8 = 12XY_5$, di mana X dan Y ialah dua digit dalam nombor asas lima itu.

Cari nilai X dan nilai Y .

- A $X=4, Y=1$
 B $X=2, Y=1$
 C $X=1, Y=4$
 D $X=1, Y=2$

- 6 $1100_2 + 1110111_2 =$
- A 10010001_2
- B 10001001_2
- C 10000101_2
- D 10000011_2

- 7 In Diagram 2, $PQRST$ is a regular pentagon. PTU and RQV are straight lines.
 Dalam Rajah 2, $PQRST$ ialah sebuah pentagon sekata. PTU dan RQV ialah garis lurus.

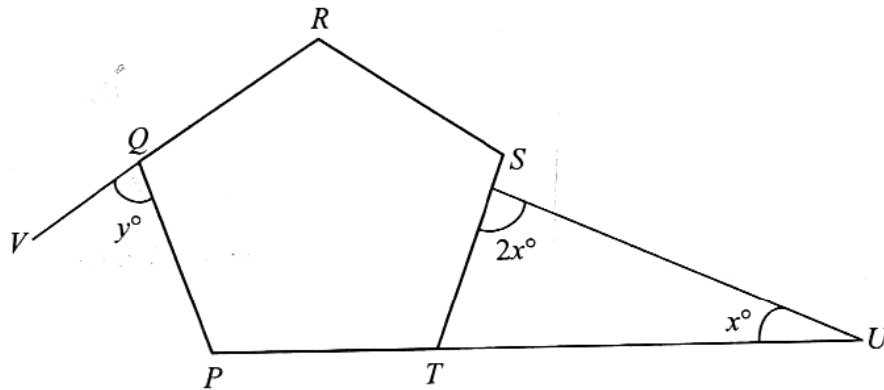


Diagram 2
Rajah 2

Find the value of $y - x$.

Cari nilai $y - x$.

- A 36
- B 72
- C 108
- D 216

- 8 In Diagram 3, O is the centre of the circle. PQ and PR are tangents to the circle.
 Dalam Rajah 3, O ialah pusat bulatan. PQ dan PR ialah tangen kepada bulatan itu.

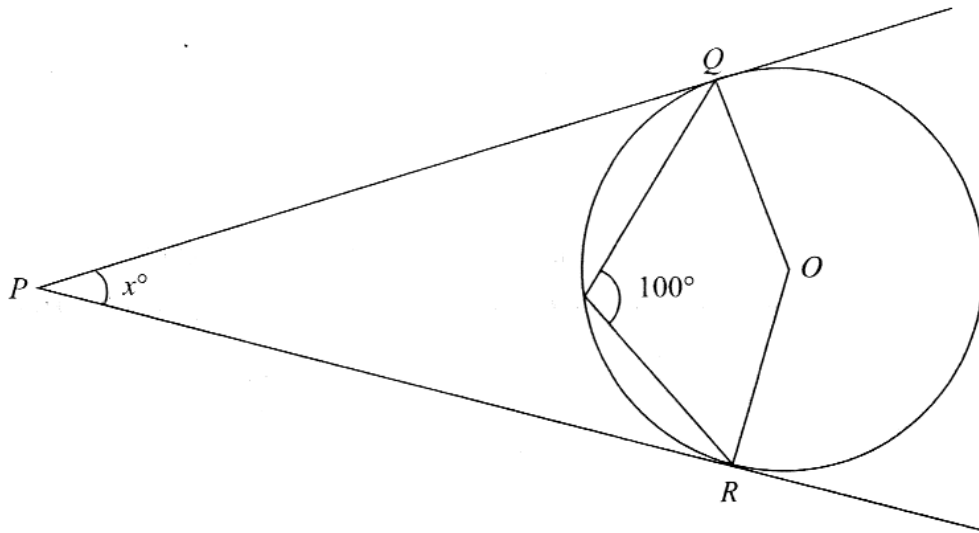


Diagram 3
Rajah 3

Find the value of x .

Cari nilai x .

- A 10
- B 20
- C 50
- D 80

- 9 In Diagram 4, $QRSTUV$ is a regular hexagon. PQR , PVT and USW are straight lines.
 Dalam Rajah 4, $QRSTUV$ ialah sebuah heksagon sekata. PQR , PVT dan USW ialah garis lurus.

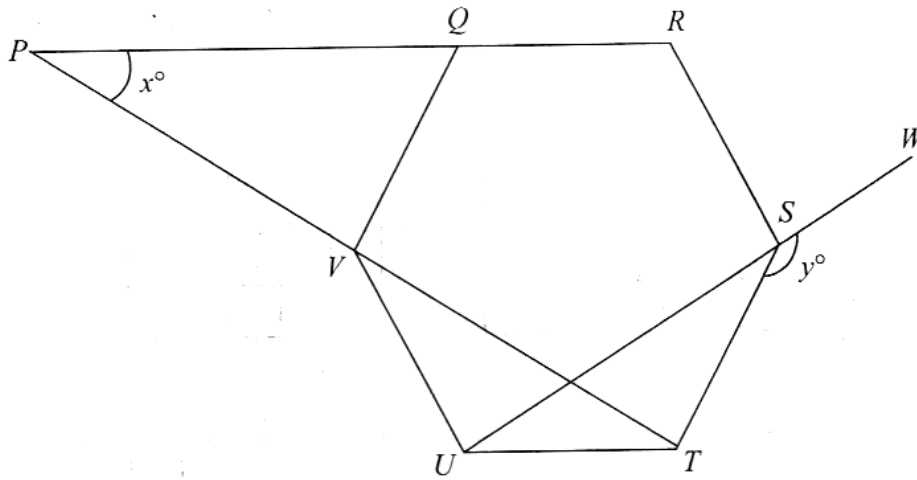


Diagram 4
Rajah 4

Find the value of $x + y$.

Cari nilai $x + y$.

- A 120
- B 130
- C 150
- D 180

- 10 In Diagram 5, S' is the image of vertex S under a translation M .
 Dalam Rajah 5, S' ialah imej bagi bucu S di bawah satu translasi M .

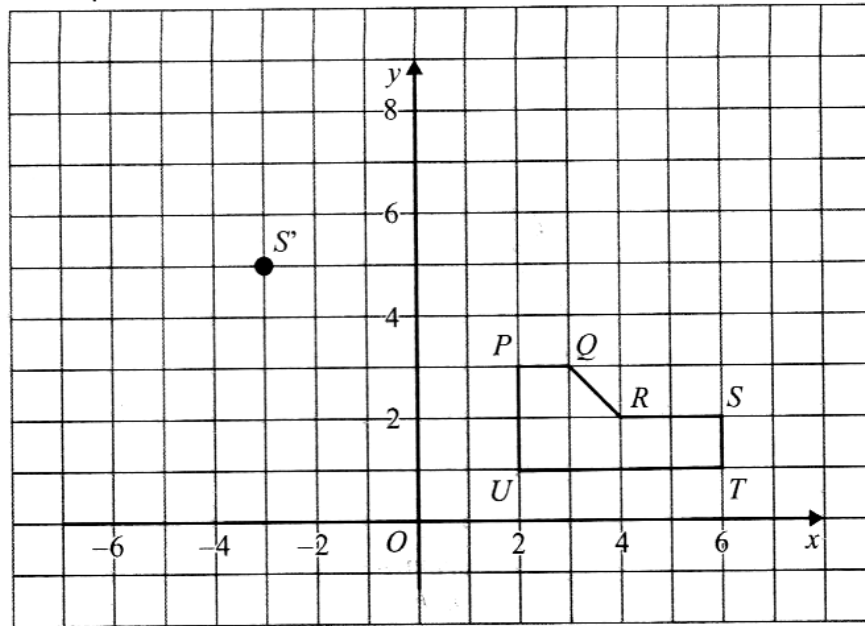


Diagram 5
Rajah 5

Translation M is
 Translasi M ialah

A $\begin{pmatrix} -9 \\ 3 \end{pmatrix}$

B $\begin{pmatrix} 3 \\ -9 \end{pmatrix}$

C $\begin{pmatrix} 6 \\ 2 \end{pmatrix}$

D $\begin{pmatrix} 6 \\ 5 \end{pmatrix}$

11 Diagram 6 shows two hexagons drawn on a Cartesian plane.

Rajah 6 menunjukkan dua heksagon yang dilukis pada suatu satah Cartes.

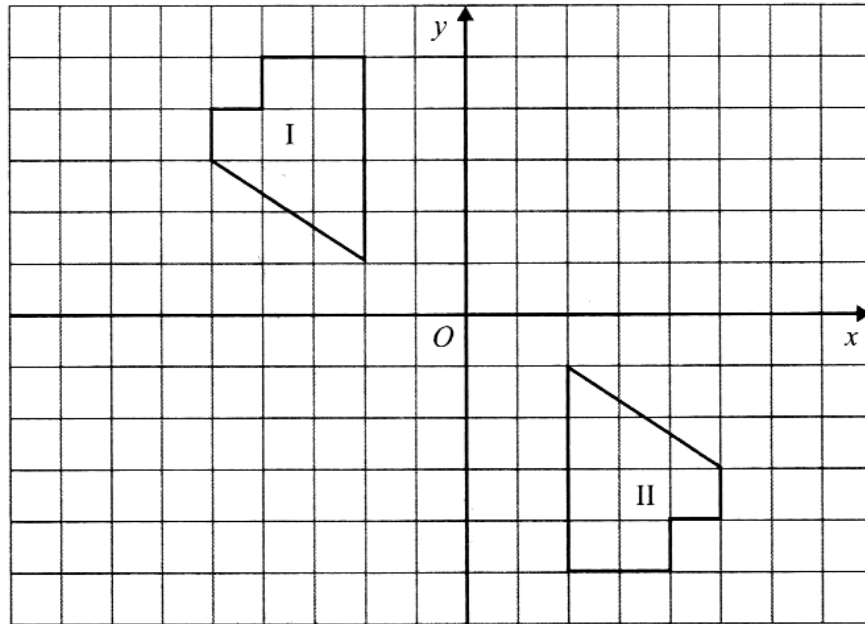


Diagram 6
Rajah 6

Hexagon II is the image of hexagon I under a transformation.

Describe in full the transformation.

Heksagon II adalah imej bagi heksagon I di bawah suatu penjelmaan.

Huraikan selengkapnya penjelmaan tersebut.

- A Clockwise rotation of 90° about the centre O
Putaran 90° ikut arah jam pada pusat O
- B Rotation of 180° about the centre O
Putaran 180° pada pusat O
- C Reflection on the line $y = x$
Pantulan pada garis $y = x$
- D Reflection on the line $y = 0$
Pantulan pada garis $y = 0$

- 12 Diagram 7 shows a regular pentagon.
Rajah 7 menunjukkan sebuah pentagon sekata.

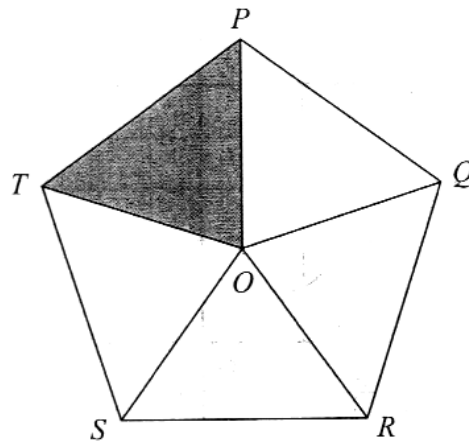


Diagram 7
Rajah 7

An image of $\triangle POT$ under an anticlockwise rotation of 144° about the centre O is
Imej bagi $\triangle POT$ di bawah putaran 144° lawan arah jam pada pusat O ialah

- A $\triangle SOT$
- B $\triangle ROS$
- C $\triangle QOR$
- D $\triangle POQ$

- 13 In Diagram 8, QRS is a straight line. Given that $\tan \angle PQR = \frac{4}{3}$, $RT : TP = 1 : 3$ and $QS = 13$ cm.

Dalam Rajah 8, QRS ialah garis lurus. Diberi $\tan \angle PQR = \frac{4}{3}$, $RT : TP = 1 : 3$ dan $QS = 13$ cm.

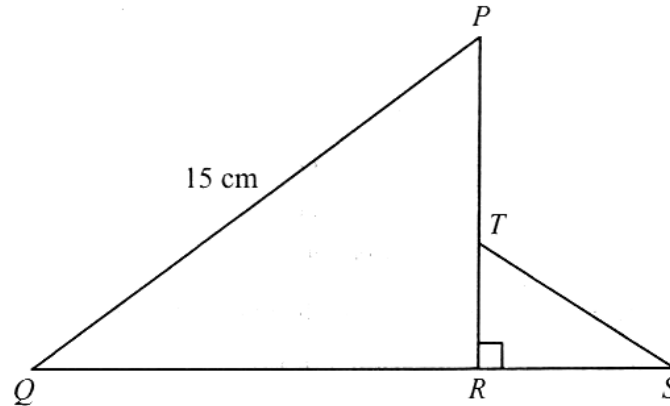


Diagram 8
Rajah 8

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

Cari nilai kos $\angle RST$.

- A $\frac{3}{5}$
 B $\frac{4}{5}$
 C $\frac{3}{4}$
 D $\frac{4}{3}$

- 14 Diagram 9 shows a cuboid with a horizontal base $PQRS$.
Rajah 9 menunjukkan sebuah kuboid dengan tapak mengufuk $PQRS$.

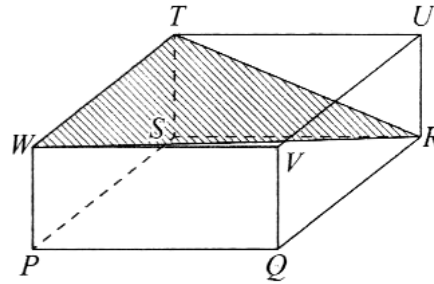


Diagram 9
Rajah 9

What is the angle between the plane WTR and the plane $PSTW$?
Apakah sudut antara satah WTR dengan satah $PSTW$?

- A $\angle TRS$
 B $\angle RSW$
 C $\angle RTS$
 D $\angle RWS$
- 15 In Diagram 10, EH is the level of water in a tank.
Dalam Rajah 10, EH ialah paras air di dalam sebuah tangki.

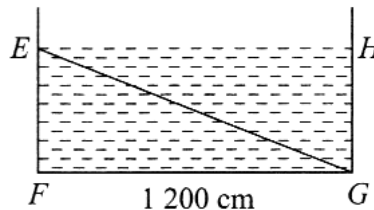


Diagram 10
Rajah 10

It is given that $FG = 1\,200$ cm and the angle of depression of G from E is $23^\circ 15'$.
 Calculate the depth of water, in m, in the tank.

*Diberi bahawa $FG = 1\,200$ cm dan sudut tunduk G dari E ialah $23^\circ 15'$.
 Kira kedalaman air, dalam m, di dalam tangki itu.*

- A 5.16
 B 11.03
 C 13.06
 D 27.93

- 16 In Diagram 11, EF is a vertical tower on a horizontal ground. The angle of elevation of a bird from peak E is 35° .

Dalam Rajah 11, EF menunjukkan sebuah menara mencancang yang terletak pada tanah mengufuk. Sudut dongakan burung dari puncak E ialah 35° .

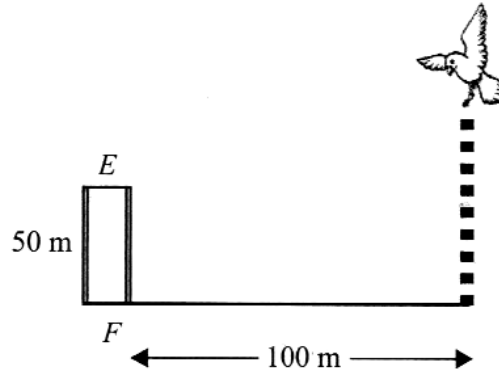


Diagram 11
Rajah 11

Calculate the height, in m, of the bird from the horizontal plane.

Hitung tinggi, dalam m, burung itu dari satah mengufuk.

- A 70.02
- B 120.02
- C 132.02
- D 145.02

- 17 Diagram 12 shows three points S , T and U on a horizontal plane.
Rajah 12 menunjukkan tiga titik S , T dan U di atas satah mengufuk.

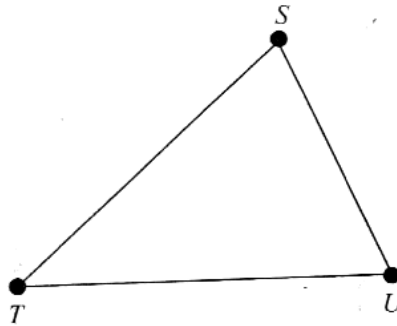


Diagram 12
Rajah 12

It is given that T lies due south of S . The bearing of U from S is 102° and $SU = TU$.

Find the bearing of point T from point U .

Diberi bahawa T berada di selatan S . Bearing U dari S ialah 102° dan $SU = TU$.

Cari bearing titik T dari titik U .

- A 078°
- B 156°
- C 204°
- D 258°

- 18 In Diagram 13, N is the North Pole, S is the South Pole and NOS is the axis of the earth.
 Dalam Rajah 13, U ialah Kutub Utara, S ialah Kutub Selatan dan NOS ialah paksi bumi.

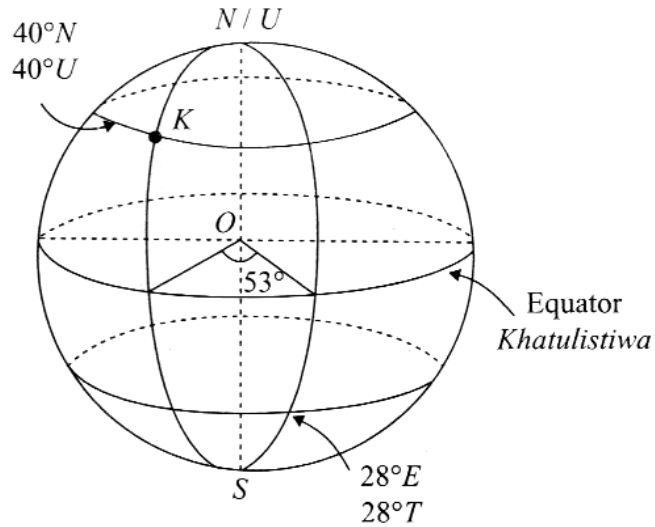


Diagram 13
 Rajah 13

Find the location of point K .

Cari kedudukan bagi titik K .

- A $(40^\circ N, 28^\circ W)$
 $(40^\circ U, 28^\circ B)$
- B $(40^\circ N, 25^\circ E)$
 $(40^\circ U, 25^\circ T)$
- C $(0^\circ, 28^\circ W)$
 $(0^\circ, 28^\circ B)$
- D $(0^\circ, 25^\circ E)$
 $(0^\circ, 25^\circ T)$
- 19 Factorise completely $3m^3 - 12m$.
 Faktorkan selengkapnya $3m^3 - 12m$.
- A $3m(m^2 - 4)$
- B $3m(m^2 - 12)$
- C $3m(m - 2)(m + 2)$
- D $3m(m - 4)(m + 4)$

20 Given $3m = \frac{2m-1}{p-3}$.

Express m in terms of p .

Diberi $3m = \frac{2m-1}{p-3}$.

Ungkapkan m dalam sebutan p .

A $m = \frac{5}{3p-11}$

B $m = \frac{5}{11-3p}$

C $m = \frac{1}{3p-11}$

D $m = \frac{1}{11-3p}$

21 Express $\frac{9mn-6m}{25-m^2} \div \frac{12mn}{5+m}$ as a single fraction in its simplest form.

Ungkapkan $\frac{9mn-6m}{25-m^2} \div \frac{12mn}{5+m}$ sebagai satu pecahan tunggal dalam bentuk termudah.

A $\frac{n-2}{4n(5-m)}$

B $\frac{3n-2}{4n(5-m)}$

C $\frac{n-2}{m(5+m)}$

D $\frac{3n-2}{4m(5-n)}$

22 $\left(\frac{2p}{q}\right)^{-2} =$

A $\frac{q^2}{4p^2}$

B $\frac{4p^2}{q^2}$

C $\frac{q^2}{2p^2}$

D $\frac{2p^2}{q^2}$

23 Simplify:

Ringkaskan:

$$\frac{(3s)^2 \times \sqrt[3]{s}}{\left(s^{\frac{1}{6}}\right)^2}$$

A $9s^2$

B $\frac{6}{s^2}$

C $9\sqrt{s}$

D $\frac{6}{\sqrt[3]{s}}$

24 Find the solution of $3p - 2 < 2p + 1 \leq 2 + 3p$.

Cari penyelesaian bagi $3p - 2 < 2p + 1 \leq 2 + 3p$.

A $1 < p \leq 3$

B $-1 < p \leq 3$

C $-1 \leq p \leq 3$

D $-2 \leq p \leq 2$

- 25 Diagram 14 represents two simultaneous linear inequalities for m on a number line.
Rajah 14 mewakili dua ketaksamaan linear serentak bagi m pada suatu garis nombor.

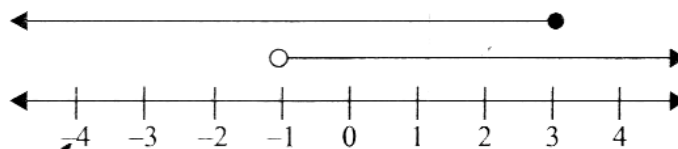


Diagram 14
Rajah 14

Which inequality represents the common values of m for both inequalities?

Ketaksamaan yang manakah mewakili nilai sepunya m bagi kedua-dua ketaksamaan?

- A $-1 \leq m < 3$
 B $-1 \leq m \leq 3$
 C $-1 < m \leq 3$
 D $-1 < m < 3$
- 26 Table 1 shows the weekly pocket money of a group of students.
Jadual 1 menunjukkan wang saku mingguan bagi sekumpulan murid.

Pocket Money, RM Wang Saku, RM	6 – 10	11 – 15	16 – 20	21 – 25
Frequency Kekerapan	10	k	15	13

Table 1
Jadual 1

If the modal class of the pocket money of that group of students is 11 – 15, what is the possible value of k ?

Jika kelas mod bagi wang saku kumpulan murid tersebut ialah 11 – 15, apakah nilai yang mungkin bagi k ?

- A 10
 B 13
 C 15
 D 16

27 Table 2 shows the marks obtained by a group of students in a telematch.

Jadual 2 menunjukkan markah yang diperolehi oleh sekumpulan murid dalam suatu sukaneka.

Markah Marks	11 – 15	16 – 20	21 – 25	26 – 30	31 – 35
Frequency cumulative Kekerapan longgokan	3	8	14	18	20

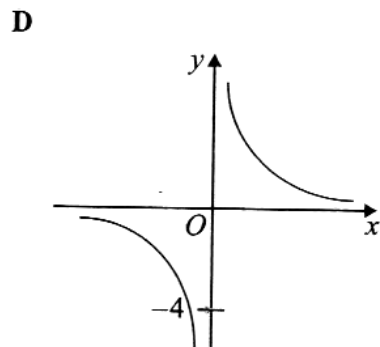
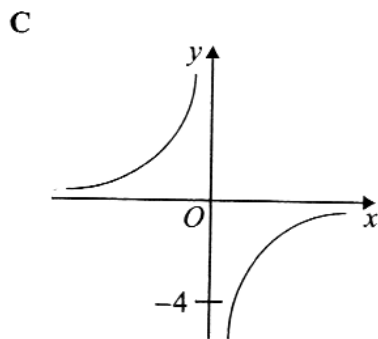
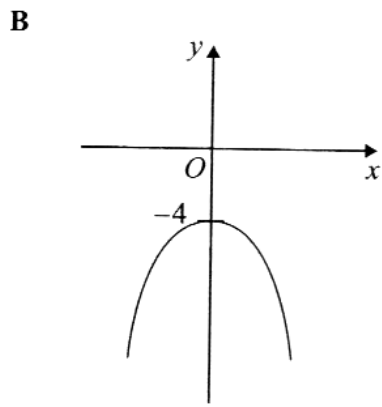
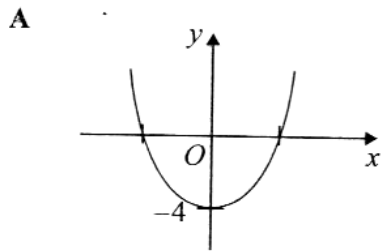
Table 2
Jadual 2

Calculate the mean mark.

Hitung min markah.

- A 20.55
- B 21.55
- C 21.65
- D 22.25

- 28 Which of the following graph represents $xy = -4$?
 Antara graf berikut, yang manakah mewakili $xy = -4$?



- 29 Diagram 15 shows a Venn diagram with the universal set, $\xi = R \cup S \cup T$.
Rajah 15 menunjukkan gambar rajah Venn dengan set semesta, $\xi = R \cup S \cup T$.

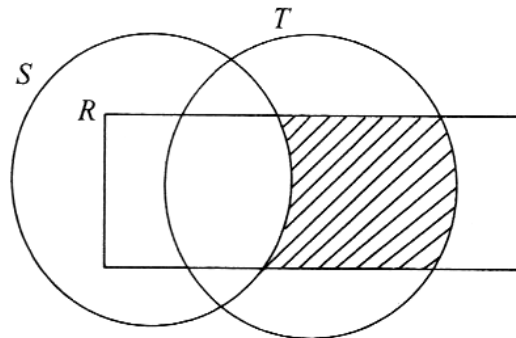


Diagram 15
Rajah 15

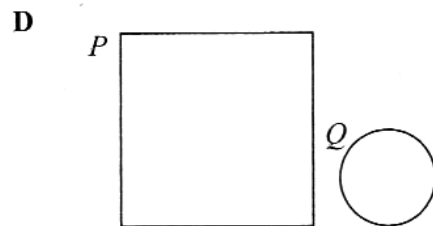
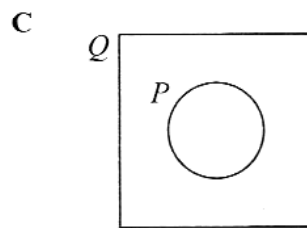
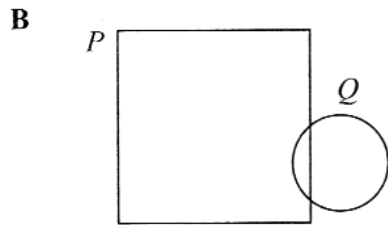
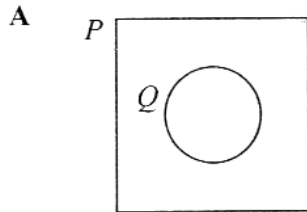
Which of the following represents the shaded region?

Antara yang berikut, yang manakah mewakili kawasan berlorek?

- A $S \cup R \cap T$
- B $T \cap R \cap S'$
- C $T \cap R \cap S$
- D $T \cap R \cup S'$

- 30 Given set $P = \{x : x \text{ is a prime number}\}$ and set $Q = \{x : x \text{ is a multiple of } 8\}$.
Which Venn diagram represents the relationship of set P and set Q ?

Diberi set $P = \{x : x \text{ ialah nombor perdana}\}$ dan set $Q = \{x : x \text{ ialah gandaan bagi } 8\}$.
Gambar rajah Venn manakah yang mewakili hubungan set P dan set Q ?



- 31 Diagram 16 shows a Venn diagram showing the number of quiz participants in set R and set S . Given that the universal set, $\xi = R \cup S$.
 Set $R = \{\text{Biology quiz participants}\}$
 Set $S = \{\text{Physics quiz participants}\}$

Rajah 16 menunjukkan satu gambar rajah Venn yang menunjukkan bilangan peserta kuiz dalam set R dan set S . Diberi bahawa set semesta, $\xi = R \cup S$.

Set $R = \{\text{Peserta kuiz Biologi}\}$

Set $S = \{\text{Peserta kuiz Fizik}\}$

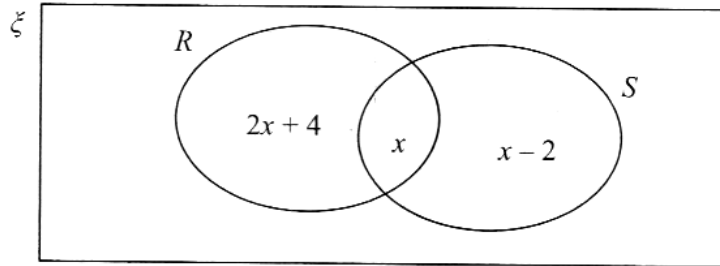


Diagram 16

Rajah 16

If the number of participants who participate in only one quiz is 23, find the total number of all the participants.

Jika bilangan peserta yang hanya mengambil bahagian dalam satu kuiz ialah 23 orang, cari jumlah semua peserta itu.

- A 18
 B 25
 C 30
 D 40

$$2x + 4$$

- 32 Diagram 17 shows four straight lines P , Q , R and S which intersect the y -axis at $(0, 0)$.

Rajah 17 menunjukkan empat garis lurus P , Q , R dan S yang bersilang dengan paksi- y di $(0, 0)$.

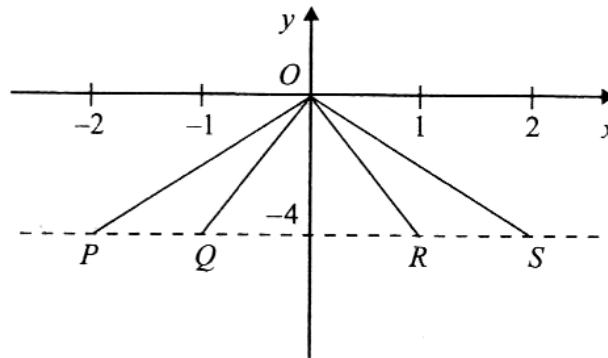


Diagram 17
Rajah 17

Determine the straight line with gradient of -2 .

Tentukan garis lurus dengan kecerunan -2 .

- A P
B Q
C R
D S
- 33 The equation of a straight line is $2y + 3x = 6$.
Determine the gradient and the x -intercept of that straight line.

Persamaan bagi suatu garis lurus ialah $2y + 3x = 6$.

Tentukan kecerunan dan pintasan- x bagi garis lurus itu.

	Gradient Kecerunan	x -intercept pintasan- x
A	$-\frac{3}{2}$	3
B	$-\frac{3}{2}$	2
C	$\frac{3}{2}$	3
D	$\frac{3}{2}$	2

- 34 There are 50 students in class T and 30 students in class R . A student is chosen at random from both classes. The probability of choosing a girl is $\frac{3}{5}$. Then 8 boys transferred to another school.

Find the probability of choosing a boy in both classes.

Kelas T mempunyai 50 orang murid dan kelas R mempunyai 30 orang murid. Seorang murid telah dipilih secara rawak daripada kedua-dua kelas. Kebarangkalian memilih seorang murid perempuan ialah $\frac{3}{5}$. Kemudian 8 orang murid lelaki telah berpindah ke sekolah lain.

Cari kebarangkalian memilih seorang murid lelaki dalam kedua-dua kelas.

A $\frac{1}{3}$

B $\frac{3}{5}$

C $\frac{4}{5}$

D $\frac{3}{10}$

- 35 A box contains 80 white coloured cards, 22 red coloured cards and some yellow coloured cards. If a card is selected at random from the box, the probability of selecting a red coloured card is $\frac{1}{6}$.

Find the number of yellow coloured cards.

Sebuah kotak mengandungi 80 kad berwarna putih, 22 kad berwarna merah dan beberapa kad berwarna kuning. Jika satu kad dipilih secara rawak daripada kotak itu, kebarangkalian mendapat kad berwarna merah ialah $\frac{1}{6}$.

Cari bilangan kad berwarna kuning.

- A 30
- B 40
- C 50
- D 55

- 36 Given that T varies directly as the square of m and inversely as the cube root of n . It is given that $T = 4$ when $m = 2$ and $n = 27$.

Express T in terms of m and n .

Diberi bahawa T berubah secara langsung dengan kuasa dua m dan secara songsang dengan punca kuasa tiga n . Diberi $T = 4$ apabila $m = 2$ dan $n = 27$.

Ungkapkan T dalam sebutan m dan n .

A $T = \frac{m^2}{3\sqrt[3]{n}}$

B $T = \frac{3m^2}{\sqrt[3]{n}}$

C $T = \frac{16m^2}{3\sqrt[3]{n}}$

D $T = \frac{9m^2}{\sqrt[3]{n}}$

37 Table 3 shows some values of the variables y and z .

Jadual 3 menunjukkan beberapa nilai pembolehubah y dan z .

y	2	4
z	$\frac{1}{6}$	p

Table 3
Jadual 3

It is given that y varies inversely as the square of z .

Calculate the value of p .

Diberi bahawa y berubah secara songsang dengan kuasa dua z .

Hitung nilai p .

A 3

B 4

C $\frac{2}{3}$

D $\frac{3}{2}$

- 38 Table 4 shows some values of the variables p , q and r .

Jadual 4 menunjukkan beberapa nilai pembolehubah p , q dan r .

p	2	3
q	4	x
r	9	4

Table 4
Jadual 4

Given that $p \propto \frac{q}{\sqrt{r}}$, calculate the value of x .

Diberi bahawa $p \propto \frac{q}{\sqrt{r}}$, hitung nilai bagi x .

- A 3
 B 4
 C 16
 D 18
- 39 $2 \begin{pmatrix} 4 & 5 \\ -3 & 2 \end{pmatrix} + \begin{pmatrix} -2 & 3 \\ -4 & 3 \end{pmatrix} - \begin{pmatrix} 2 & 3 \\ 7 & 9 \end{pmatrix} =$
- A $\begin{pmatrix} 4 & 10 \\ -17 & -2 \end{pmatrix}$
 B $\begin{pmatrix} 8 & 13 \\ -9 & -2 \end{pmatrix}$
 C $\begin{pmatrix} 6 & 5 \\ -8 & 2 \end{pmatrix}$
 D $\begin{pmatrix} 4 & 10 \\ 17 & -2 \end{pmatrix}$

40 Given $\begin{pmatrix} 12 & 0 \\ -4 & 2 \end{pmatrix} - 2K = 3 \begin{pmatrix} 2 & -\frac{2}{3} \\ 2 & -2 \end{pmatrix}$, find matrix K .

Diberi $\begin{pmatrix} 12 & 0 \\ -4 & 2 \end{pmatrix} - 2K = 3 \begin{pmatrix} 2 & -\frac{2}{3} \\ 2 & -2 \end{pmatrix}$, cari matriks K .

A $\begin{pmatrix} 3 & 1 \\ -5 & 4 \end{pmatrix}$

B $\begin{pmatrix} 3 & -1 \\ -5 & -4 \end{pmatrix}$

C $\begin{pmatrix} 6 & 2 \\ -10 & 8 \end{pmatrix}$

D $\begin{pmatrix} 6 & -2 \\ -5 & 4 \end{pmatrix}$

END OF QUESTION PAPER
KERTAS PEPERIKSAAN TAMAT