

1449/1  
Matematik  
Kertas 1  
November 2022  
 $1\frac{1}{2}$  jam



MAJLIS PENGETUA SEKOLAH MALAYSIA  
NEGERI SEMBILAN

PROGRAM PENINGKATAN AKADEMIK TINGKATAN 5  
SEKOLAH-SEKOLAH MENENGAH NEGERI SEMBILAN 2022

MATEMATIK

Kertas 1

Satu jam tiga puluh minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas peperiksaan ini mengandungi 40 soalan.*
2. *Jawab semua soalan.*
3. *Bagi setiap soalan, pilih satu jawapan sahaja. Hitamkan jawapan anda pada kertas jawapan objektif yang disediakan.*
4. *Kertas soalan ini adalah dalam dwibahasa.*
5. *Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
6. **Kertas jawapan objektif hendaklah diserahkan kepada pengawas peperiksaan pada akhir peperiksaan.**

Kertas soalan ini mengandungi 25 halaman bercetak dan 3 halaman tidak bercetak.

**NOMBOR DAN OPERASI  
NUMBERS AND OPERATIONS**

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

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

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

4  $a^{\frac{1}{n}} = \sqrt[n]{a}$

5  $a^{\frac{m}{n}} = (a^m)^{\frac{1}{n}} = (a^{\frac{1}{n}})^m$

6  $a^{\frac{m}{n}} = \sqrt[n]{a^m} = (\sqrt[n]{a})^m$

7 Faedah mudah / *Simple interest*,  
 $I = Prt$

8 Nilai Matang / *Maturity Value*,  
 $MV = P \left( 1 + \frac{r}{n} \right)^{nt}$

9 Jumlah bayaran balik / *Total repayment*,  $A = P + Prt$

$$\text{Premium} = \frac{\text{Nilai muka polisi}}{\text{RMx}} \times (\text{Kadar premium per RMx})$$

10 
$$\text{Premium} = \frac{\text{Face value of policy}}{\text{RMx}} \times (\text{Premium rate per RMx})$$

11 
$$\text{Jumlah insurans yang harus dibeli} = \left( \begin{array}{c} \text{Peratusan} \\ \text{ko-insurans} \end{array} \right) \times \left( \begin{array}{c} \text{Nilai boleh} \\ \text{insurans harta} \end{array} \right)$$

$$\text{Amount of required insurance} = \left( \begin{array}{c} \text{Percentage of} \\ \text{co-insurance} \end{array} \right) \times \left( \begin{array}{c} \text{Insurable value} \\ \text{of property} \end{array} \right)$$

**PERKAITAN  
RELATIONS**

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

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

3 Laju purata =  $\frac{\text{Jumlah jarak}}{\text{Jumlah masa}}$   
$$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$$

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

5  $A^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$

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

**SUKATAN DAN GEOMETRI**  
**MEASUREMENT AND GEOMETRY**

- 1 Teorem Pythagoras / *Pythagoras Theorem*  $c^2 = a^2 + b^2$
- 2 Hasil tambah sudut pedalaman poligon / *Sum of interior angles of a polygon*  
 $= (n - 2) \times 180^\circ$
- 3 Lilitan bulatan =  $\pi d = 2\pi j$   
*Circumference of circle* =  $\pi d = 2\pi r$
- 4 Luas bulatan =  $\pi j^2$   
*Area of circle* =  $\pi r^2$   
$$\frac{\text{Panjang lengkok}}{2\pi j} = \frac{\theta}{360^\circ}$$
- 5 
$$\frac{\text{Arc length}}{2\pi} = \frac{\theta}{360^\circ}$$
- 6 
$$\frac{\text{Luas sektor}}{\pi j^2} = \frac{\theta}{360^\circ}$$
  
$$\frac{\text{Area of sector}}{\pi r^2} = \frac{\theta}{360^\circ}$$
- 7 Luas layang =  $\frac{1}{2} \Delta$ —hasil darab panjang dua pepenjuru  
*Area of kite* =  $\frac{1}{2} \Delta$ —*product of two diagonals*
- 8 Luas trapezium =  $\frac{1}{2} \times$  hasil tambah dua sisi selari  $\times$  tinggi  
*Area of trapezium* =  $\frac{1}{2} \times$  *sum of parallel sides*  $\times$  *height*
- 9 Luas permukaan silinder =  $2\pi j^2 + 2\pi jt$   
*Surface area of cylinder* =  $2\pi r^2 + 2\pi rh$
- 10 Luas permukaan kon =  $\pi j^2 + \pi js$   
*Surface area of cone* =  $\pi r^2 + \pi rs$
- 11 Luas permukaan sfera =  $4\pi j^2$   
*Surface area of sphere* =  $4\pi r^2$
- 12 Isipadu prisma tegak = luas keratan rentas  $\times$  tinggi  
*Volume of right prism* = *cross sectional area*  $\times$  *height*
- 13 Isipadu silinder =  $\pi j^2 t$   
*Volume of cylinder* =  $\pi r^2 h$

[Lihat halaman sebelah  
SULIT

- 14 Isipadu kon =  $\frac{1}{3}\pi r^2 h$   
*Volume of cone* =  $\frac{1}{3}\pi r^2 h$
- 15 Isipadu sfera =  $\frac{4}{3}\pi r^3$   
*Volume of sphere* =  $\frac{4}{3}\pi r^3$
- 16 Isipadu piramid tegak =  $\frac{1}{3} \times \text{luas tapak} \times \text{tinggi}$   
*Volume of right pyramid* =  $\frac{1}{3} \times \text{base area} \times \text{height}$
- 17 Faktor skala,  $k = \frac{PA'}{PA}$   
*Scale factor*,  $k = \frac{PA'}{PA}$
- 18 Luas imej =  $k^2 \times \text{luas objek}$   
*Area of image* =  $k^2 \times \text{area of object}$

**STATISTIK DAN KEBARANGKALIAN**  
**STATISTICS AND PROBABILITY**

- 1 Min / Mean,  $\bar{x} = \frac{\sum x}{N}$
- 2 Min / Mean,  $\bar{x} = \frac{\sum fx}{f}$
- 3 Varians / Variance,  $\sigma^2 = \frac{\sum x^2}{N} - \bar{x}^2 = \frac{\sum (x - \bar{x})^2}{N}$
- 4 Varians / Variance,  $\sigma^2 = \frac{\sum fx^2}{\sum f} - \bar{x}^2 = \frac{\sum f(x - \bar{x})^2}{\sum f}$
- 5 Sisihan piawai / Standard deviation,  $\sigma = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2} = \sqrt{\frac{\sum (x - \bar{x})^2}{N}}$
- 6 Sisihan piawai / Standard deviation,  $\sigma = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2} = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}}$
- 7  $P(A) = \frac{n(A)}{n(S)}$
- 8  $P(A') = 1 - P(A)$

- 1 Nilai bagi  $62.34 \div 51.45 \times 9.99$  betul kepada empat angka bererti ialah

*The value of  $62.34 \div 51.45 \times 9.99$  correct to four significant figures is*

- A 12.10
- B 12.104
- C 12.105
- D 12.20

- 2 Adam mempunyai 255 kg beras. Dia menggunakan 40% daripada beras itu untuk memasak bubur. Baki beras dibahagikan sama banyak ke dalam 3 beg. Cari jisim, dalam g, beras dalam setiap beg itu.

*Adam has 255 kg of rice. He uses 40% of the rice to cook porridge. The remainder of the rice is divided equally into 3 bags. Find the mass, in g, of rice in each bag.*

- A  $3.4 \times 10^3$
- B  $3.4 \times 10^4$
- C  $5.1 \times 10^3$
- D  $5.1 \times 10^4$

- 3 Permudahkan

*Simplify*

$$\frac{2a + b}{12a - 9b} \div \frac{4a^2 - b^2}{6ab - 3b^2}$$

- A  $\frac{3}{4a - 3b}$
- B  $\frac{b}{4a - 3b}$
- C  $\frac{(2a + b)^2}{4a - 3b}$
- D  $\frac{b^2}{a - b}$

- 4 Faktorkan  $81m^2 - 81$  dengan lengkapnya.

*Factorise  $81m^2 - 81$  completely.*

- A  $81(m-1)(m+1)$   
 B  $-81(m+1)(m+1)$   
 C  $81(m-1)(m-1)$   
 D  $-81(m-1)(m+1)$

- 5 Diberi  $3k+1 = \frac{2k-2}{2r}$ , ungkapkan  $k$  dalam sebutan  $r$  dalam sebutan teringkas.

*Given  $3k+1 = \frac{2k-2}{2r}$ , express  $k$  in terms of  $r$  in the simplest form.*

- A  $\frac{r+1}{1-3r}$   
 B  $\frac{2r+2}{2-6r}$   
 C  $\frac{3}{2-6r}$   
 D  $\frac{3}{2(1-3r)}$

- 6 Diberi  $p = \frac{q-1}{q+1}$  dan  $r = \frac{1}{q}$ , ungkapkan  $r$  dalam sebutan  $p$ .

*Given  $p = \frac{q-1}{q+1}$  and  $r = \frac{1}{q}$ , express  $r$  in terms of  $p$ .*

- A  $r = \frac{p^2-1}{p+1}$   
 B  $r = \frac{2p-1}{p+2}$   
 C  $r = \frac{1-p}{p+1}$   
 D  $r = \frac{1+p}{2-p}$

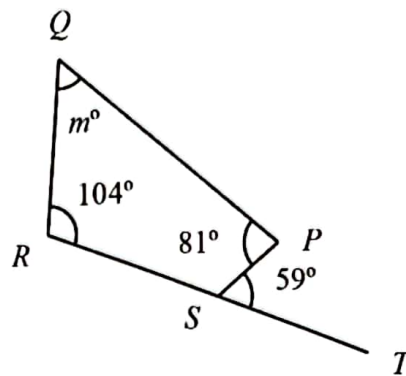
7 Diberi bahawa  $\frac{3x-1}{4} = 5 - (x-7)$ . Cari nilai bagi  $x$ .

Given that  $\frac{3x-1}{4} = 5 - (x-7)$ . Find the value of  $x$ .

- A -3
- B 5
- C 7
- D 9

8 Dalam Rajah 1,  $RST$  adalah garis lurus.

In Diagram 1,  $RST$  is a straight line.



Rajah 1  
Diagram 1

Nilai  $m$  ialah

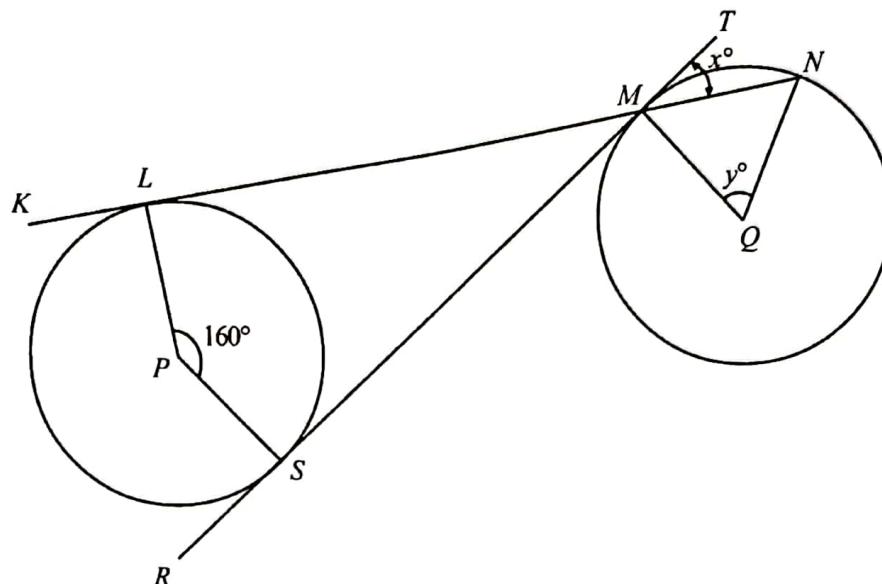
The value of  $m$  is

- A 54
- B 64
- C 74
- D 84



- 9 Rajah 2 menunjukkan dua bulatan, masing-masing berpusat  $P$  dan  $Q$ .  $RSMT$  ialah tangen sepunya kepada bulatan-bulatan, masing-masing di  $S$  dan di  $M$ .  $KLMN$  ialah tangen kepada bulatan berpusat  $P$  di  $L$ .

*Diagram 2 shows two circles with centre  $P$  and  $Q$  respectively.  $R$ .  $RSMT$  is a common tangent to the circles at  $S$  and  $M$  respectively.  $KLMN$  is a tangent to the circle, centre  $P$  at  $L$ .*



Rajah 2  
Diagram 2

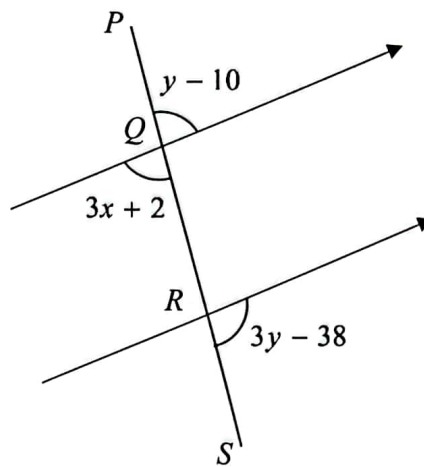
Cari nilai  $x + y$ .

*Find the value of  $x + y$ .*

- A 40
- B 60
- C 65
- D 75



- 10 Dalam Rajah 3,  $PQRS$  ialah garis lurus.  
In Diagram 3,  $PQRS$  is a straight line.



Rajah 3  
Diagram 3

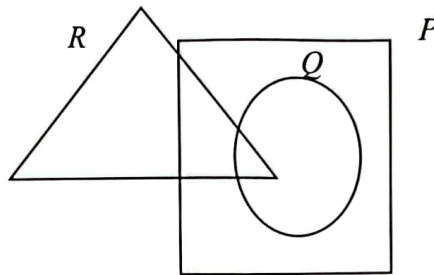
Cari nilai  $y - x$ .

Find the value of  $y - x$ .

- A  $35^\circ$
- B  $38^\circ$
- C  $42^\circ$
- D  $47^\circ$

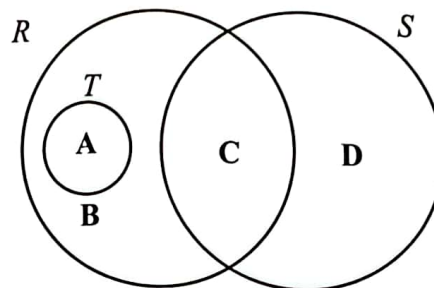
- 11 Gambar rajah Venn pada rajah 4 menunjukkan hubungan antara set P, Q dan R. Diberi set semesta  $\xi = P \cup Q \cup R$ ,  $n(P) = 31$ ,  $n(Q) = 21$ ,  $n(\xi) = 72$  dan  $n(R' \cap P \cap Q') = 8$ . Oleh itu  $n[P' \cup (R \cap Q')]$  =

The Venn diagram in diagram 4 shows the relationship between sets P, Q and R. It is given that the universal set  $\xi = P \cup Q \cup R$ ,  $n(P) = 31$ ,  $n(Q) = 21$ ,  $n(\xi) = 72$  and  $n(R' \cap P \cap Q') = 8$ . Therefore  $n[P' \cup (R \cap Q')]$  =



Rajah 4  
Diagram 4

- A 62  
B 43  
C 41  
D 23
- 12 Rajah 5 menunjukkan sebuah gambar rajah Venn dengan set semesta  $\xi = R \cup S \cup T$ .  
Diagram 5 shows a Venn diagram with the universal set  $\xi = R \cup S \cup T$ .



Rajah 5  
Diagram 5

Antara rantau A, B, C atau D, yang manakah mewakili set  $R \cap S' \cap T'$ ?  
Which of the region A, B, C or D represents the set  $R \cap S' \cap T'$ ?

- 13 Diberi  $k_8 = 10111_2$ , di mana  $k$  ialah integer, cari nilai  $k$ .  
*Given  $k_8 = 10111_2$ , where  $k$  is an integer, find the value of  $k$ .*
- A 17  
B 27  
C 53  
D 56
- 14 Hitung beza nilai digit 3 antara nombor  $13247_8$  dengan  $312_5$ .  
*Calculate the difference between the values of digit 3 in  $13247_8$  and  $312_5$ .*
- A 487  
B 1 461  
C 2 700  
D 11 905
- 15  $R$  berubah secara langsung dengan punca kuasa tiga  $S$  dan berubah secara songsang dengan kuasa dua  $T$ . Diberi hubungan antara  $R$ ,  $S$  dan  $T$  ialah  $R = kS^pT^q$ . Nyatakan beza antara nilai  $p$  dan  $q$ .  
 *$R$  varies directly as the cube root of  $S$  and inversely as the square of  $T$ . Given the relationship among  $R$ ,  $S$  and  $T$  is  $R = kS^pT^q$ . State the difference between  $p$  and  $q$ .*
- A  $\frac{1}{3}$   
B  $\frac{2}{3}$   
C  $\frac{5}{3}$   
D  $\frac{7}{3}$

- 16 Diberi  $y$  berubah secara songsang dengan kuasa dua  $x$ , dan  $y = 2$  apabila  $x = 4$ .  
Ungkapkan  $y$  dalam sebutan  $x$ .

*Given  $y$  varies inversely as the square of  $x$ , and  $y = 2$  when  $x = 4$ .*

*Express  $y$  in terms of  $x$ .*

A  $y = \frac{8}{\sqrt{x}}$

B  $y = \frac{32}{\sqrt{x}}$

C  $y = \frac{32}{x^2}$

D  $y = \frac{8}{x^2}$

- 17 Ringkaskan  $(mn^2)^3 \div m^{-4}n^8$

*Simplify  $(mn^2)^3 \div m^{-4}n^8$*

A  $m^7n^{-1}$

B  $m^7n^{-2}$

C  $m^5n^{14}$

D  $m^{-4}n^{14}$

18 Antara berikut, yang manakah merupakan satu pernyataan?

*Which of the following is a statement?*

A  $3k > 8$

B  $2b - 6 = -8$

C  $4^2 + 6^2$

D  $3^2 = \sqrt{9}$

19 Cari penyelesaian bagi  $8 - \frac{x}{2} < 3 + 2x$ .

Find the solution for  $8 - \frac{x}{2} < 3 + 2x$

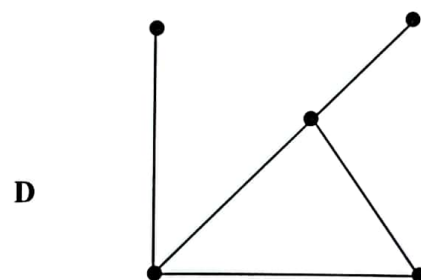
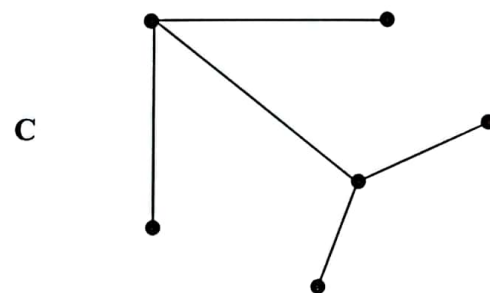
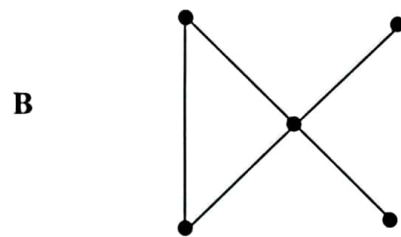
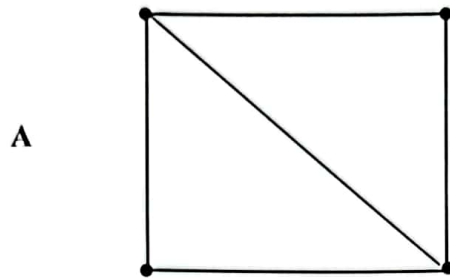
A  $x < -2$

B  $x > -2$

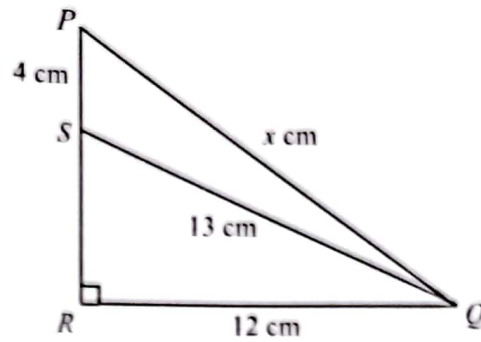
C  $x < 2$

D  $x > 2$

- 20 Antara yang berikut, graf manakah yang merupakan sebuah pokok?  
*Which of the following graphs is a tree?*



21

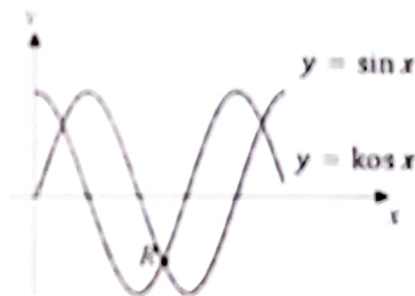


Rajah 6  
Diagram 6

Rajah 6 menunjukkan segi tiga bersudut tegak  $PQR$  dan  $SQR$ . Cari nilai  $x$ .  
Diagram 6 shows a right angle triangle  $PQR$  and  $SQR$ . Find the value of  $x$ .

- A 12.65 cm
- B 13.60 cm
- C 15.00 cm
- D 15.81 cm

22



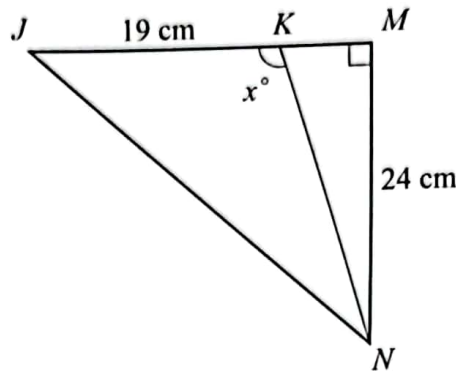
Rajah 7  
Diagram 7

Rajah 7 menunjukkan graf bagi  $y = \sin x$  dan  $y = \cos x$ . Koordinat  $y$  bagi titik  $R$  ialah  
Diagram 7 shows the graphs of  $y = \sin x$  and  $y = \cos x$ . The  $y$ -coordinate of  $R$  is

- A -1
- B -0.8660
- C -0.7071
- D -0.5



- 23 Dalam Rajah 8,  $JKM$  adalah garis lurus.  
*In Diagram 8,  $JKM$  is a straight line.*



Rajah 8  
 Diagram 8

Diberi  $JM = 26$  cm. Cari nilai  $\cos x^\circ$ .

*Given that  $JM = 26$  cm. Find the value of  $\cos x^\circ$ .*

- A  $-\frac{7}{25}$
- B  $-\frac{24}{25}$
- C  $\frac{24}{25}$
- D  $\frac{7}{25}$
- 24 Aini telah membuat simpanan tetap di bank ABC dengan kadar faedah sebanyak 3.7% setahun dengan kompaun setiap suku tahun. Beliau mula menyimpan RMx pada Januari 2018. Pada Januari 2022, simpanannya menjadi RM8 111.07. Berapakah simpanan awal yang telah disimpan oleh Aini.
- Aini has made a fixed deposit at ABC bank with an interest rate of 3.7% per annum compounded quarterly. She started saving RMx in January 2018. In January 2022, her savings increased to RM8 111.07. How much initial savings has Aini saved?*
- A 6 997
- B 7 000
- C 7 002
- D 7 014

- 25 Elizabeth mempunyai insurans perubatan dengan deduktibel tahunan sebanyak RM800 dan fasal penyertaan peratusan ko-insurans 80/20 dalam polisinya. Pada bulan Ogos 2022, Elizabeth telah menjalani suatu pembedahan kecil. Jika kos perubatan yang dilindungi polisi insurannya berjumlah RM22 500, hitung bayaran kos yang ditanggung oleh Elizabeth sendiri.

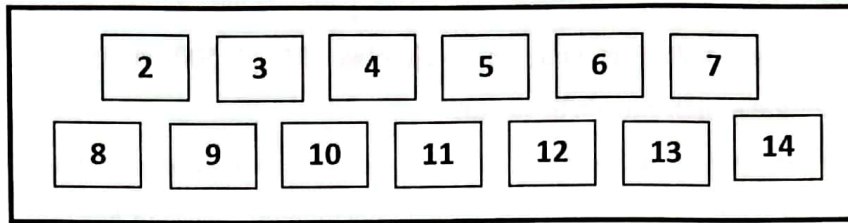
*Elizabeth has a major medical insurance policy with a deductible provision of RM800 and an 80/20 co-insurance percentage participant clause in her policy. In August 2022, Elizabeth underwent a minor surgery. If the medical cost covered by her policy is RM22 500, calculate the cost borne by Elizabeth herself.*

- A RM18 160  
B RM17 360  
C RM5 140  
D RM4 340
- 26 Sufi memiliki sebuah kedai dengan keluasan 228 m<sup>2</sup>. Jika kadar cukai tanah yang dikenakan ialah RM0.42 setiap meter persegi, hitung cukai tanah yang perlu dibayar oleh Sufi setiap tahun.

*Sufi owns a shop with an area of 228 m<sup>2</sup>. If the quit rent rate levied is RM0.42 per square metre, calculate the quit rent payable by Sufi every year.*

- A RM88.75  
B RM90.20  
C RM95.76  
D RM100.80

- 27 Rajah 9 menunjukkan sebilangan kad berlabel di dalam sebuah kotak  
*Diagram 9 shows some labelled cards in a box.*



Rajah 9  
*Diagram 9*

Sekeping kad dipilih secara rawak dari kotak itu. Cari kebarangkalian bahawa kad berlabel nombor perdana dipilih.

*A card is picked at random from the box. Find the probability that the card labelled with a prime number picked.*

- A  $\frac{7}{14}$   
B  $\frac{6}{13}$   
C  $\frac{6}{14}$   
D  $\frac{7}{13}$

- 28 Diberi bahawa set  $T = \{34, 34, 54, 59, 61, 62, 91\}$ . Satu nombor dipilih secara rawak daripada unsur-unsur set  $T$ . Apakah kebarangkalian bahawa suatu nombor yang digit sa lebih besar dari digit puluh dipilih ?

*It is given that set  $T = \{34, 34, 54, 59, 61, 62, 91\}$ . A number is chosen at random from the elements of set  $T$ . What is the probability that a number with unit digit is larger than tens digit is chosen?*

- A  $\frac{1}{7}$   
B  $\frac{2}{7}$   
C  $\frac{3}{7}$   
D  $\frac{5}{7}$

- 29 Diberi persamaan bagi suatu garis lurus yang melalui titik (2, 3) ialah  $2y - 4x + c = 0$ . Cari koordinat bagi titik persilangan garis lurus tersebut dengan paksi- $x$ .

*Given the equation of a straight line which passes through point (2, 3) is  $2y - 4x + c = 0$ .*

*Find the coordinates of the point of intersection of the straight line with the  $x$ -axis.*

- A (3, 0)
- B (1, 0)
- C (2, 0)
- D  $\left(\frac{1}{2}, 0\right)$

- 30 Antara titik – titik berikut yang paling hampir pada titik asalan?

*Which of the following points is the nearest to the origin?*

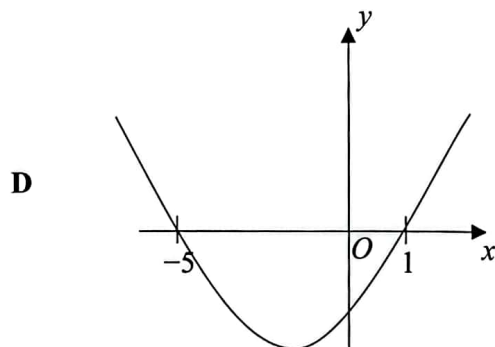
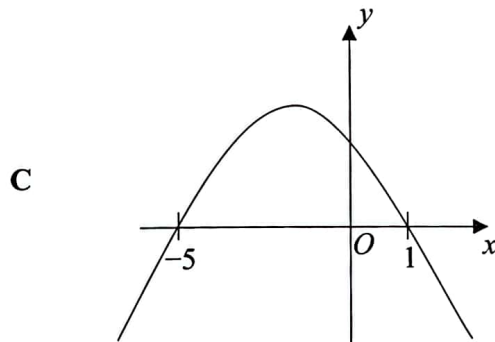
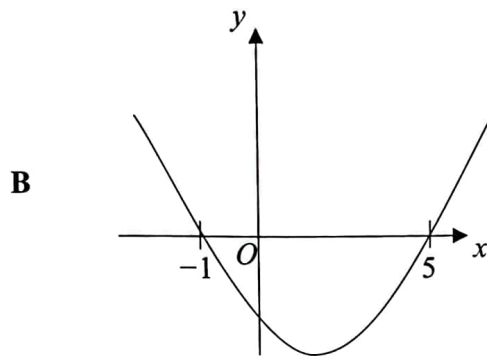
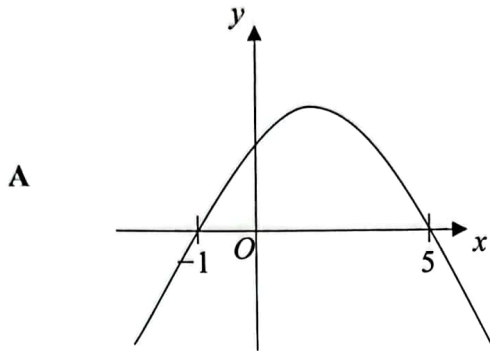
- A (3, 4)
- B (5, 12)
- C (0, -6)
- D (-3, 5)

- 31 Varians bagi 4, 6, 9, 3, 5 dan 8 ialah 3. Cari varians bagi 10, 14, 20, 8, 12 dan 18.

*The variance of 4, 6, 9, 3, 5 and 8 is 3. Find the variance of 10, 14, 20, 8, 12 and 18.*

- A 3
- B 6
- C 8
- D 12

- 32 Antara graf yang berikut, yang manakah mewakili  $y = -4x + x^2 - 5$ ?  
*Which of the following graphs represents  $y = -4x + x^2 - 5$ ?*



- 33 Data dalam Jadual 1 di bawah menunjukkan skor bagi suatu permainan bagi sekumpulan murid.

*The data in Table 1 below shows the score of a game of a group of students.*

Skor / Score	1	2	3	4	5
Kekerapan / Frequency	8	$k$	10	7	2

Jadual 1  
Table 1

Apakah nilai yang mungkin bagi  $k$  bagi data ini supaya mempunyai mod skor 2?

*What is the possible value of  $k$  for the data to have the mode score 2?*

- A 2  
B 8  
C 10  
D 11
- 34 Jadual 2 ialah sebuah jadual kekerapan yang menunjukkan bilangan e-mel yang dihantar oleh 36 orang pelajar dalam sebulan.

*Table 2 is a frequency table which shows the number of e-mails sent by 36 students in a month.*

Bilangan e-mel Number of e-mails	Kekerapan Frequency
10 - 19	10
20 - 29	8
30 - 39	6
40 - 49	5
50 - 59	7

Jadual 2  
Table 2

Hitung min bilangan e-mel yang dihantar oleh seorang pelajar.

*Calculate the mean number of e-mails sent by a student.*

- A 35  
B 32  
C 30  
D 27

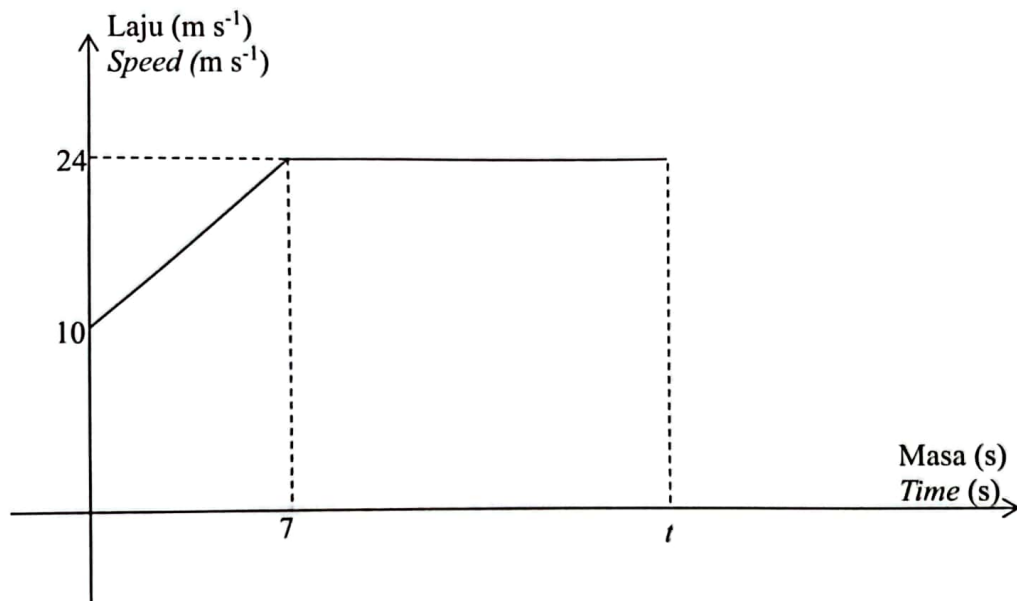
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SULIT

- 35 Rajah 10 menunjukkan graf laju-masa bagi pergerakan suatu zarah dalam tempoh  $t$  saat.

*Diagram 10 shows the speed-time graph for the movement of a particle for a period of  $t$  seconds.*

Diberi jarak yang dilalui oleh zarah itu dalam  $t$  saat ialah 239 m. Hitung nilai  $t$  dalam minit.

*Given the distance travelled by the particle in  $t$  second is 239 m. Calculate the value of  $t$  in minute.*

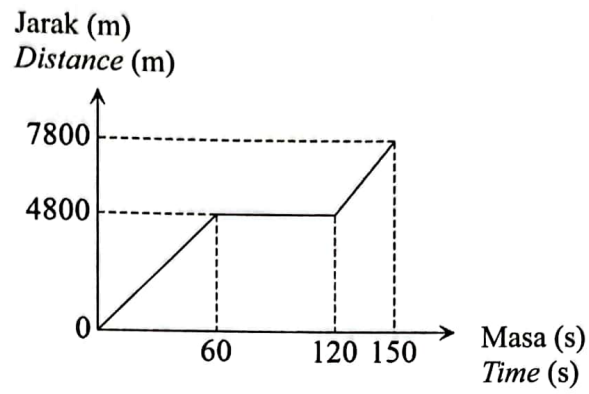


Rajah 10  
Diagram 10

- A 0.2
- B 0.35
- C 12
- D 14



36



Rajah 11  
Diagram 11

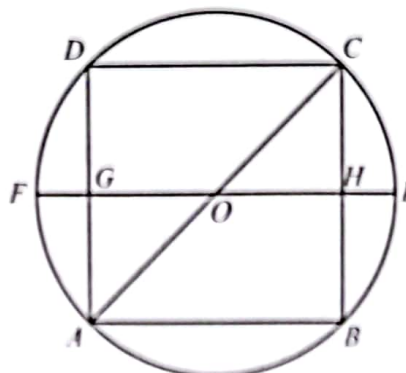
Kelajuan zarah itu, dalam  $\text{m s}^{-1}$ , bagi 30 saat yang terakhir ialah

*The speed of the particle, in  $\text{m s}^{-1}$ , for the last 30 seconds is*

- A 52
- B 80
- C 100
- D 160

- 37 Rajah 12 di bawah menunjukkan sebuah bulatan dengan pusat  $O$  dan segi empat  $ABCD$ , dimana  $FGHI$  dan  $AOC$  merupakan garis lurus.

*Diagram 12 shows a circle with centre  $O$  and a quadrilateral  $ABCD$ , where  $FGHI$  and  $AOC$  are a straight line.*



Rajah 12  
Diagram 12

Titik  $X$  yang jaraknya adalah sentiasa sama dari titik  $A$  dan titik  $D$ . Manakah antara berikut yang paling tepat menerangkan locus  $X$ ?

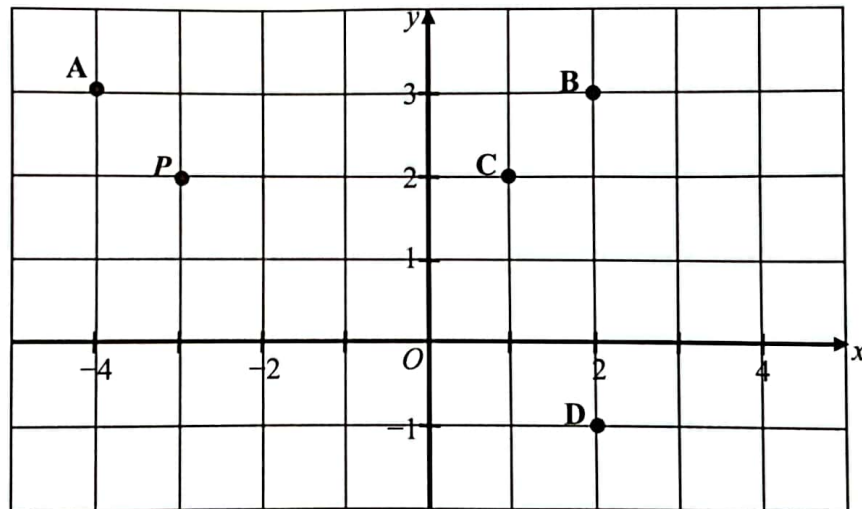
*Point  $X$  is always equidistant from point  $A$  and point  $D$ . Which of the following best describe locus  $X$ ?*

- A** Bulatan pada pusat  $A$  dan pusat  $D$   
*Circles at centre  $A$  and centre  $D$ .*
- B** Sepasang garis lurus selari  $CD$  dan  $AB$ .  
*A pair of parallel lines  $CD$  and  $AB$ .*
- C** Garis lurus  $AC$ .  
*A straight line  $AC$ .*
- D** Pembahagi dua sama serenjang antara titik  $A$  dan titik  $D$ .  
*A perpendicular bisector between point  $A$  and point  $D$ .*
- 38  $(3 \ 2 \ 5) + 3(-1 \ 3 \ 1) - 2(-3 \ 4 \ -2) =$
- A**  $(6 \ 3 \ -3)$
- B**  $(6 \ 3 \ 12)$
- C**  $(2 \ 3 \ 8)$
- D**  $(-2 \ 3 \ -6)$

- 39 Matriks songsang bagi  $\begin{pmatrix} 4 & -6 \\ 6 & -7 \end{pmatrix}$  ialah  $\frac{1}{p}\begin{pmatrix} -7 & 6 \\ -6 & q \end{pmatrix}$ . Cari nilai  $p + q$ .

The inverse matrix of  $\begin{pmatrix} 4 & -6 \\ 6 & -7 \end{pmatrix}$  is  $\frac{1}{p}\begin{pmatrix} -7 & 6 \\ -6 & q \end{pmatrix}$ . Find the value of  $p + q$ .

- A 12  
 B 4  
 C -12  
 D -4
- 40 Diberi penjelmaan **U** ialah pantulan pada garis  $x = -1$  dan penjelmaan **W** ialah putaran  $90^\circ$  ikut arah jam pada titik asalan.  
 Given transformation **U** is a reflection on the line  $x = -1$  and transformation **W** is a rotation of  $90^\circ$  clockwise about the origin.



Rajah 13  
 Diagram 13

- Antara titik **A**, **B**, **C** dan **D**, yang manakah imej di bawah gabungan transformasi **UW**?  
 Which of the point **A**, **B**, **C** and **D**, is the image of the combined transformation **UW**?

**KERTAS PEPERIKSAAN TAMAT**