

SULIT

RUMUS MATEMATIK MATHEMATICAL FORMULAE

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

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

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*, $A = P + Prt$

10 $\text{Premium} = \frac{\text{Nilai muka polisi}}{\text{RMx}} \times (\text{Kadar premium per RMx})$

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

11 Jumlah insurans yang harus dibeli = (Peratusan ko - insurans) \times (Nilai boleh insurans harta)
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PERKAITAN DAN ALGEBRA RELATIONSHIP AND ALGEBRA

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

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

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

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

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

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

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 = πj^2
Area of circle = πr^2
- 5
$$\frac{\text{Panjang lengkok}}{2 \pi j} = \frac{\theta}{360^\circ}$$

$$\frac{\text{Arc length}}{2 \pi r} = \frac{\theta}{360^\circ}$$
- 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 = $\frac{1}{2} \times$ hasil darab panjang dua pepenjuru
Area of kite = $\frac{1}{2} \times$ 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 Isi padu prisma = luas keratan rentas \times tinggi
Volume of prism = area of cross section \times height
- 13 Isi padu silinder = $\pi j^2 t$
Volume of cylinder = $\pi r^2 h$

- 14
Isi padu kon = $\frac{1}{3} \pi j^2 t$
Volume of cone = $\frac{1}{3} \pi r^2 h$
- 15
Isi padu sfera = $\frac{4}{3} \pi j^3$
Volume of sphere = $\frac{4}{3} \pi r^3$
- 16
Isi padu piramid = $\frac{1}{3} \times \text{luas tapak} \times \text{tinggi}$
Volume of 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, $\sigma^2 = \frac{\sum (x - \bar{x})^2}{N} = \frac{\sum x^2}{N} - \bar{x}^2$
- 4
Varians / Variance, $\sigma^2 = \frac{\sum f(x - \bar{x})^2}{\sum f} = \frac{\sum fx^2}{\sum f} - \bar{x}^2$
- 5
Sisihan piawai / Standard deviation, $\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{N}} = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2}$
- 6
Sisihan piawai / Standard deviation, $\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{\sum f}} = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2}$
- 7
 $P(A) = \frac{n(A)}{n(S)}$
- 8
 $P(A') = 1 - P(A)$

- 1** Hitung hasil darab 1.24 dan 0.034. Bundarkan jawapan kepada 3 angka bererti.
Calculate the product of 1.24 and 0.034. Round off the answer correct to three significant figures.
- A** 0.04
- B** 0.042
- C** 0.0421
- D** 0.0422
- 2** Pengguna kad kredit diberi kelonggaran oleh pihak bank dengan membenarkan pengguna kad membayar dalam suatu tempoh tertentu yang dikenali sebagai tempoh tanpa faedah. Berapakah bilangan hari tempoh tanpa faedah bermula dari tarikh penyata?
The credit card holder is given a flexibility by allowing users to pay bank which is known as the interest free period.
How many days is the interest free period starting from the statement date?
- A** 10
- B** 15
- C** 20
- D** 30

3 Antara berikut, yang manakah bukan insurans am?

Which of the following is not general insurance?

A Insurans kemalangan
Accident insurance

B Insurans hayat
Life insurance

C Insurans perubatan
Medical insurance

D Insurans perjalanan
Travel insurance

4 Diberi markah Matematik bagi tujuh orang murid di dalam suatu ujian ialah 45, 80, 72, 54, 65, 50 dan 89. Hitung varians bagi set data itu.

Given the marks of seven students in a Mathematics tests are 45, 80, 72, 54, 65, 50 and 89.

Calculate the variance of the data set.

A 228

B 3998

C 4388

D 25350

- 5 Pooja mendeposit RM6 000 ke dalam akaun simpanannya dengan kadar faedah 3% setahun dan dikompaun setiap suku tahun. Berapakah jumlah wang simpanan Pooja pada akhir tahun kelima?

Pooja deposits RM6 000 into her savings account with an interest rate 3% per annum and is compounded quarterly. What is the amount of Pooja's savings at the end of the fifth year?

- A RM6762.56
- B RM6900.00
- C RM6965.81
- D RM6967.10
- 6 Di dalam sebuah kotak terdapat 11220_3 biji guli. $\frac{1}{4}$ daripada guli itu adalah berwarna merah, $\frac{2}{3}$ berwarna biru dan selebihnya berwarna kuning. Hitung beza bilangan guli merah dan guli kuning, dalam asas tujuh di dalam kotak itu.

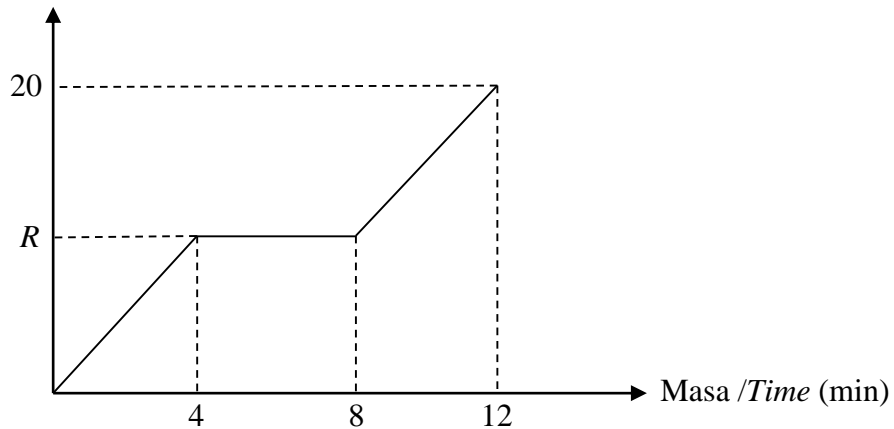
There are 11220_3 marbles in a box. $\frac{1}{4}$ of the marbles are red, $\frac{2}{3}$ are blue and the rest are yellow. Calculate the difference numbers of red marbles and yellow marbles, in base seven, in the box.

- A 31_7
- B 22_7
- C 16_7
- D 13_7

7 Rajah 1 menunjukkan graf laju-masa bagi pergerakan sebuah bas.

Diagram 1 shows the speed-time graph for a motion of a bus.

Laju/Speed (km min^{-1})



Rajah 1
Diagram 1

Hitung nilai R jika jumlah jarak yang dilalui dengan laju seragam yang dilalui oleh bas itu adalah 48 km.

Calculate the value of R if the distance travelled with uniform speed by the bus is 48 km.

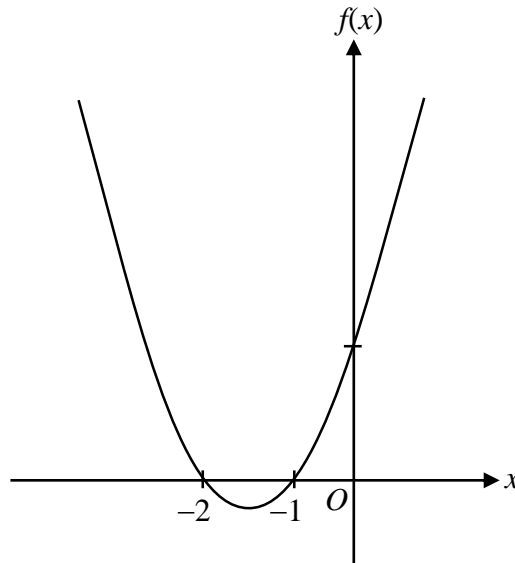
- A 6
- B 8
- C 12
- D 24

8 Rajah 2 menunjukkan suatu graf fungsi kuadratik yang diwakili oleh

$$f(x) = 2(x^2 + 3x + c).$$

The graph of the quadratic function in Diagram 2 is represented by

$$f(x) = 2(x^2 + 3x + c).$$



Rajah 2
Diagram 2

Hitung nilai c .

Calculate the value of c .

- A 2
- B 4
- C 10
- D 20

- 9 Encik Nukman memandu dari Bandar Aman ke Bandar Damai sejauh j km, dengan laju, h km/j dalam tempoh, m jam. Diberi hubungan antara laju, jarak dan masa ialah $h \propto \frac{j^2}{\sqrt{m}}$.

Antara yang berikut, yang manakah mewakili nilai – nilai h , j dan m apabila nilai pemalar ubahan, $k = 1$.

Encik Nukman drives from Bandar Aman dan Bandar Damai in a distance of j km, with the speed of h km/j in a period of m hours. Given the relation between the speed, distance

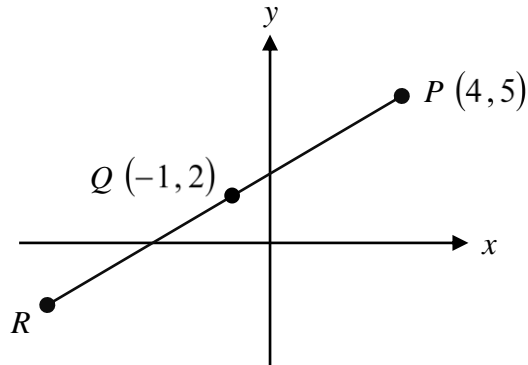
and time is $h \propto \frac{j^2}{\sqrt{m}}$. Which of the following represent the values of h , j and m when the

values of the the values of h , j and m when the values of the variations constant, $k = 1$.

	h	j	m
A	100	100	10
B	105	23	25
C	110	100	2
D	125	25	25

- 10 Rajah 3 menunjukkan suatu satah Cartes dengan garis lurus PQR . Q ialah titik tengah bagi garis PR .

Diagram 3 shows a Cartesian plane with a straight line PQR . Q is the midpoint of straight line PR .



Rajah 3
Diagram 3

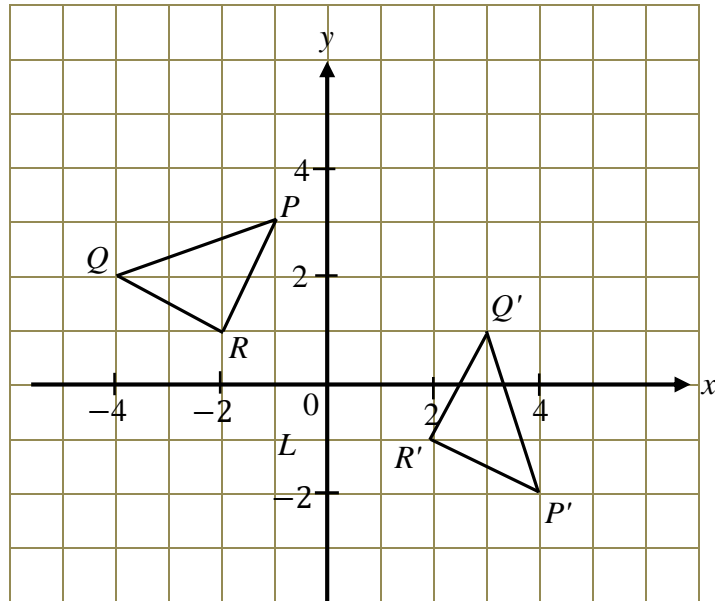
Cari koordinat R .

Find the coordinate R .

- A $(6, -1)$
- B $(-6, -1)$
- C $(-6, 1)$
- D $(-1, -6)$

- 11 Rajah 4 menunjukkan dua segitiga pada satah Cartes. Segitiga $P'Q'R'$ ialah imej bagi segitiga PQR di bawah satu putaran 90° ikut arah jam pada suatu pusat putaran.

Diagram 4 shows two triangles on a Cartesian plane. Triangle $P'Q'R'$ is an image of triangle PQR under a clockwise rotation of 90° at a centre of rotation.



Rajah 4
Diagram 4

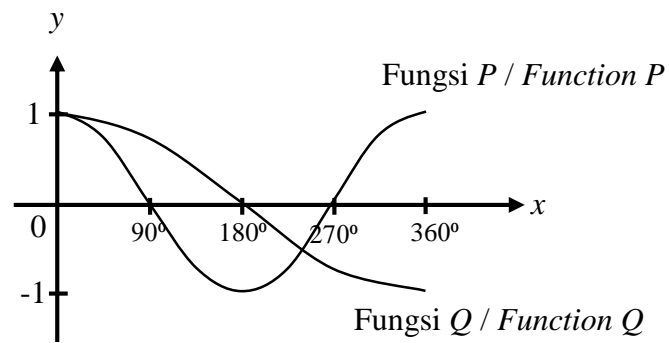
Tentukan koordinat pusat putaran tersebut.

Determine the coordinates of the centre of rotation.

- A (0, 0)
- B (1, 2)
- C (-1, -2)
- D (-2, -1)

12 Rajah 5 menunjukkan dua graf fungsi trigonometri yang dilukis di atas satah Cartes.

Diagram 5 shows two graphs of trigonometric function drawn on a Cartesian plane.



Rajah 5
Diagram 5

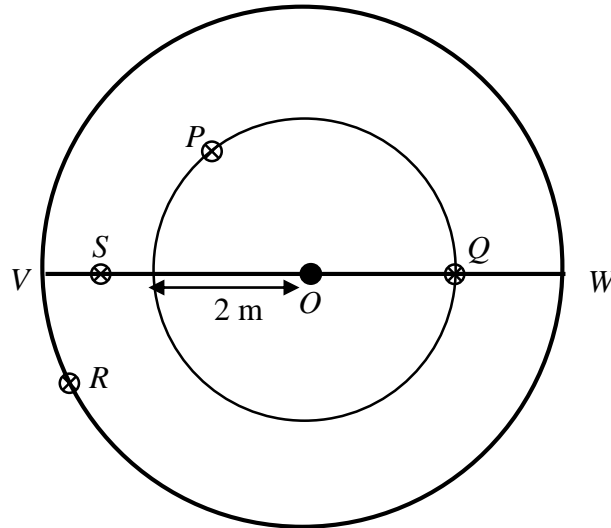
Antara yang berikut, manakah yang mewakili fungsi P dan fungsi Q ?

Which of the following represent function P and function Q ?

	Fungsi P Function P	Fungsi Q Function Q
A	$y = \cos x$	$y = \cos 2x$
B	$y = \cos 2x$	$y = \cos x$
C	$y = \cos x$	$y = \cos \frac{1}{2}x$
D	$y = \cos \frac{1}{2}x$	$y = \cos x$

- 13** Rajah 6 menunjukkan pelan sebuah kolam berbentuk bulatan yang akan di bina oleh Savitha. O ialah pusat kolam dan W ialah jambatan. Air pancut akan dibina supaya jaraknya sentiasa 1.5 m dari jambatan dan 2 m dari pusat kolam.

Diagram 6 shows the plan of the circular pond will be built by Savitha. O is the centre of the pond and VW is the bridge. Fountain will be built so that the distance is 1.5 m from the bridge and 2 m from the centre of the pond.



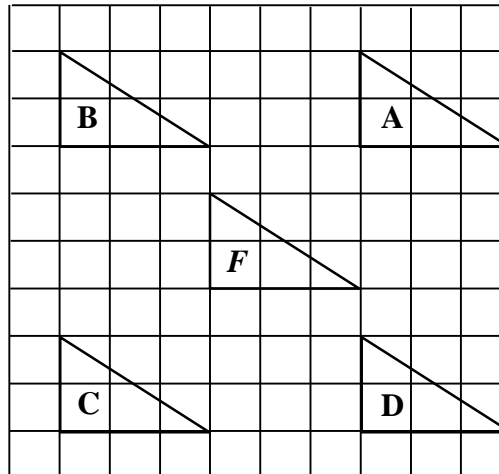
Rajah 6
Diagram 6

Antara titik P , Q , R dan S , yang manakah lokasi yang mungkin bagi air pancut tersebut.
Which of the points P , Q , R and S , represent the location of the fountain.

- A** P
- B** Q
- C** R
- D** S

14 Rajah 7 menunjukkan segitiga F dilukis pada grid segi empat sama.

Diagram 7 shows a triangle F drawn on a square grid.



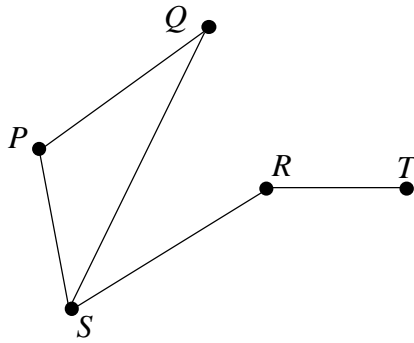
Rajah 7
Diagram 7

Antara segitiga **A**, **B**, **C**, dan **D**, yang manakah objek bagi segitiga F di bawah suatu translasi $\begin{pmatrix} -3 \\ 3 \end{pmatrix}$?

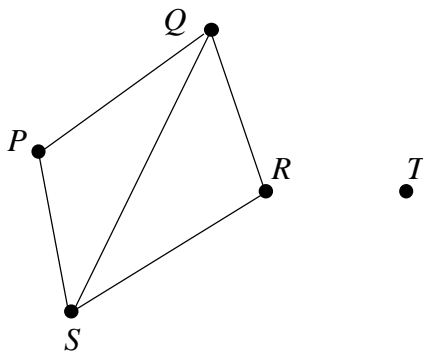
*Which of the following triangles **A**, **B**, **C**, and **D**, is the object of triangle F under a translation $\begin{pmatrix} -3 \\ 3 \end{pmatrix}$?*

15 Antara subgraf berikut, yang manakah mewakili suatu pokok?
 Which of the following subgraph represent a tree?

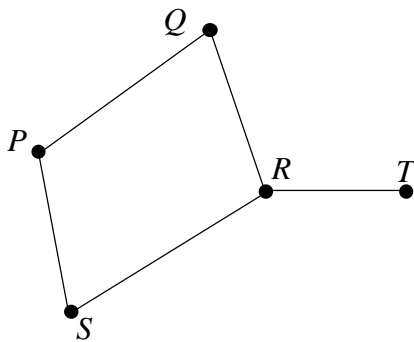
A



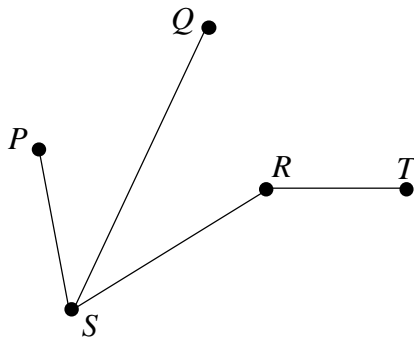
B



C



D



- 16 Sempena Kejohanan Sukantara Sekolah, 55 orang murid diminta mendaftar untuk menyertai dua jenis acara sukan. 28 orang murid memilih lompat jauh, 21 orang murid memilih 100 m dan 12 orang murid tidak berjaya mendaftar sebarang acara.

Berapakah bilangan murid yang memilih kedua – dua acara sukan tersebut?

In conjunction of the School Standard Sport Day, 55 students were asked to register to participate in two types of sports events. 28 students chose long jump, 21 students chose 100 m and 12 students failed to register any event.

How many students chose both sports events?

- A 6
- B 7
- C 43
- D 55
- 17 Rajah 8 menunjukkan satu implikasi.

Diagram 8 shows an implication.

Jika $x \div 2 = -3$, maka $x = -6$
 If $x \div 2 = -3$, then $x = -6$

Rajah 8
 Diagram 8

Antara berikut, yang manakah benar?

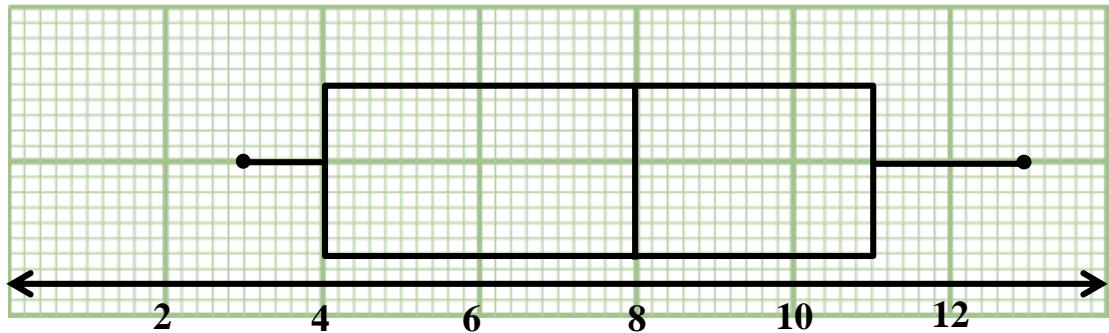
Which of the following is true?

	Akas <i>Converse</i>	Nilai kebenaran <i>Truth value</i>
A	Jika $x = -6$, maka $x \div 2 = -3$ <i>If $x = -6$, then $x \div 2 = -3$</i>	Benar <i>True</i>
B	Jika $x = -6$, maka $x \div 2 = -3$ <i>If $x = -6$, then $x \div 2 = -3$</i>	Palsu <i>False</i>
C	Jika $x \neq -6$, maka $x \div 2 \neq -3$ <i>If $x \neq -6$, then $x \div 2 \neq -3$</i>	Benar <i>True</i>
D	Jika $x \neq -6$, maka $x \div 2 \neq -3$ <i>If $x \neq -6$, then $x \div 2 \neq -3$</i>	Palsu <i>False</i>

[Lihat halaman sebelah

- 18 Rajah 9 menunjukkan satu plot kotak yang mewakili jisim sekumpulan kanak – kanak, dalam kg di sebuah taman asuhan.

Diagram 9 shows a box plot represent the mass of children, in kg in a nursery school.



Rajah 9
Diagram 9

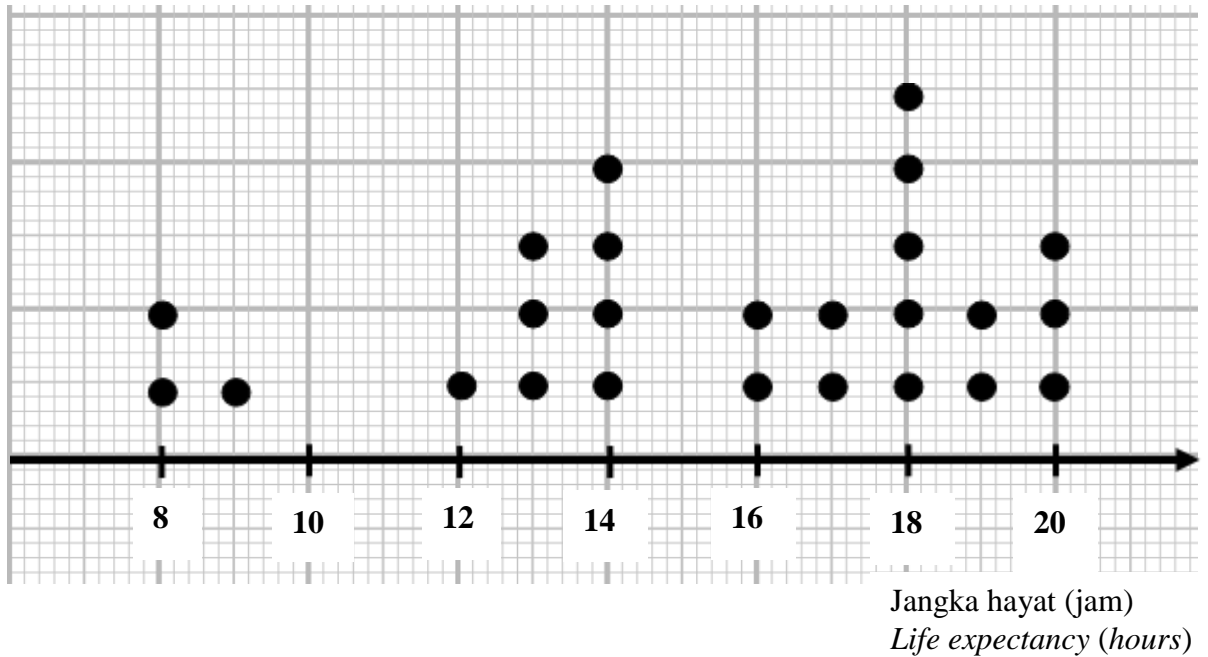
Cari julat antara kuartil bagi data di atas.

Find the interquartile range for the above data.

- A 7
- B 8
- C 10
- D 13

- 19 Rajah 10 menunjukkan plot titik yang mewakili data mengenai jangka hayat, dalam jam, 25 unit bateri yang diuji dalam makmal.

Diagram 10 shows a dot plot which represent a data of life expectancy, in hours, 25 units of batteries, tested in the laboratory.



Rajah 10
Diagram 10

Tentukan median bagi data di atas.

Determine the median of the data above.

- A 16
- B 17
- C 18
- D 20

- 20 Sebuah kotak mengandungi m keping kad berwarna kuning dan 30 keping kad berwarna biru. Sekeping kad dipilih secara rawak daripada kotak itu. Jika kebarangkalian bahawa sekeping kad berwarna kuning dipilih ialah $\frac{2}{5}$, hitung nilai m .

A box contains m yellow cards and 30 blue cards. A card is picked at random from the box.

If probability of yellow card is being pick is $\frac{2}{5}$, calculate the value of m .

A 75

B 50

C 45

D 20

- 21 Nyatakan salah satu nilai x yang mungkin bagi persamaan berikut.

State one of the possible value of x for the following equations.

$$b^{x^2} \div b^{7x} = b^x$$

A 1

B -7

C -8

D 8

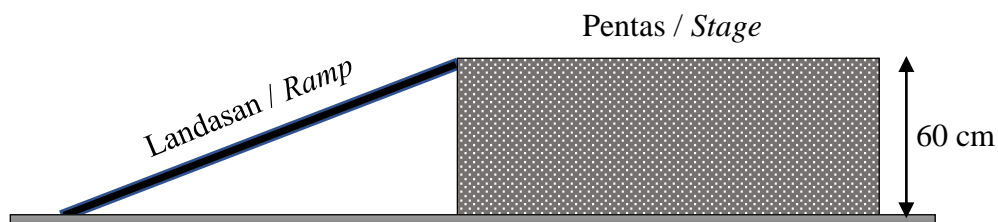
- 22 Bundarkan 0.007106 betul kepada tiga angka bererti dan seterusnya ungkapkan jawapan tersebut dalam bentuk piawai.

Round off 0.007106 correct to three significant figures and hence express the answer in standard form.

- A 7.00×10^3
- B 7.00×10^{-3}
- C 7.11×10^3
- D 7.11×10^{-3}

- 23 Rajah 11 menunjukkan sebuah pentas kecil yang dibina oleh Ramlan untuk pertandingan pidato di sekolahnya dengan ketinggian 60 cm.

Diagram 11 shows a small stage built by Ramlan for a speech contest at his school with a height of 60 cm.



Rajah 11
Diagram 11

Hitung kecerunan landasan tersebut sekiranya panjang landasan yang diperlukan ialah 134.16 cm.

Calculate the gradient of the ramp if the required length of ramp is 134.16 cm.

- A 0.44
- B 0.45
- C 0.50
- D 2.00

- 24** Diberi salah satu punca persamaan kuadratik $x^2 - px - 3 = 0$ ialah -1 . Tentukan persamaan paksi simetri bagi graf fungsi kuadratik itu.

Given one of the roots of the quadratic equation $x^2 - px - 3 = 0$ is -1 . Determine the equation of the axis of symmetry for the graph of the quadratic function.

A $x = -2$

B $x = -1$

C $x = 1$

D $x = 2$

- 25** Senaraikan semua integer k yang memuaskan ketaksamaan linear $k + 3 > 0$ dan $9k - 20 \leq 16$.
List all the integers k that satisfy the linear inequalities $k + 3 > 0$ and $9k - 20 \leq 16$.

A $-3, -2, -1, 0, 1, 2, 3, 4$

B $-2, -1, 0, 1, 2, 3, 4$

C $-3, -2, -1, 0, 1, 2, 3$

D $-2, -1, 0, 1, 2, 3$

$$26 \quad \frac{m-n}{3m+n} \div \frac{(m-n)^2}{6m+2n} =$$

$$\text{A} \quad \frac{2}{m+n}$$

$$\text{B} \quad \frac{2}{m-n}$$

$$\text{C} \quad \frac{(m-n)^3}{18m^2 + 12mn + 2n^2}$$

$$\text{D} \quad \frac{6m+2n}{3m^2 - 2mn - n^2}$$

- 27 Jadual 1 menunjukkan masa yang diperlukan untuk menyiapkan satu lembaran kerja, m dan bilangan murid, n .

Table 1 shows the time needed to complete a worksheet, m and the number of students, n .

m	n
18	2
x	3

Jadual 1

Table 1

Diberi bahawa m berubah secara songsang dengan kuasa dua bilangan murid, n .

Cari nilai x .

It is given that m varies inversely as the square of the number of students, n .

Find the value of x .

- A 8
- B 12
- C 18
- D 40.5

28 Diberi $(7 \ 3) \begin{pmatrix} 1 \\ 2 \end{pmatrix} = P$ Cari matriks P .

Given $(7 \ 3) \begin{pmatrix} 1 \\ 2 \end{pmatrix} = P$. Find the matrix P .

A $\begin{pmatrix} 7 & 3 \\ 14 & 6 \end{pmatrix}$

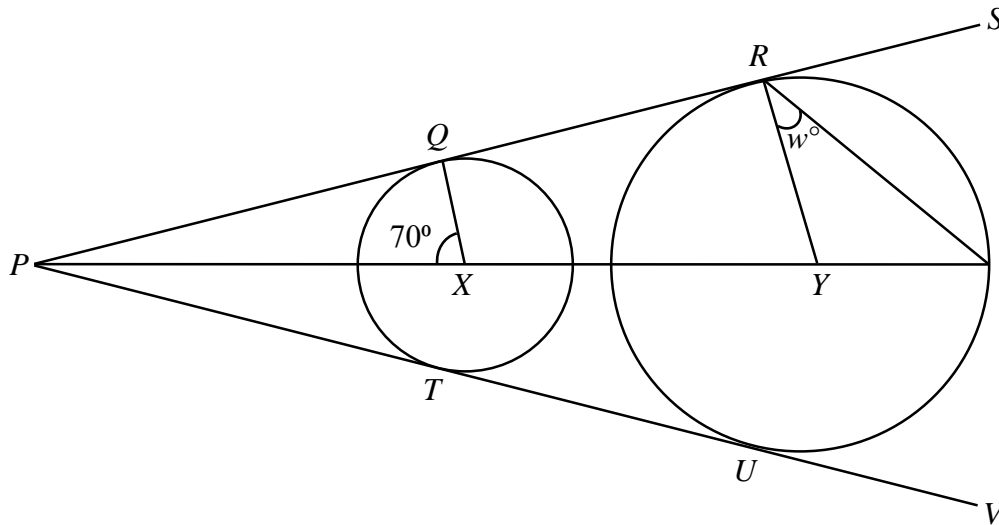
B $(7 \ 6)$

C $\begin{pmatrix} 7 \\ 6 \end{pmatrix}$

D (13)

- 29 Rajah 12 menunjukkan dua bulatan berpusat X dan Y . $PQRS$ dan $PTUV$ ialah tangen sepunya bagi kedua – dua bulatan itu.

Diagram 12 shows two circles with center X and Y . $PQRS$ and $PTUV$ are the common tangents of the two circles.



Rajah 12
Diagram 12

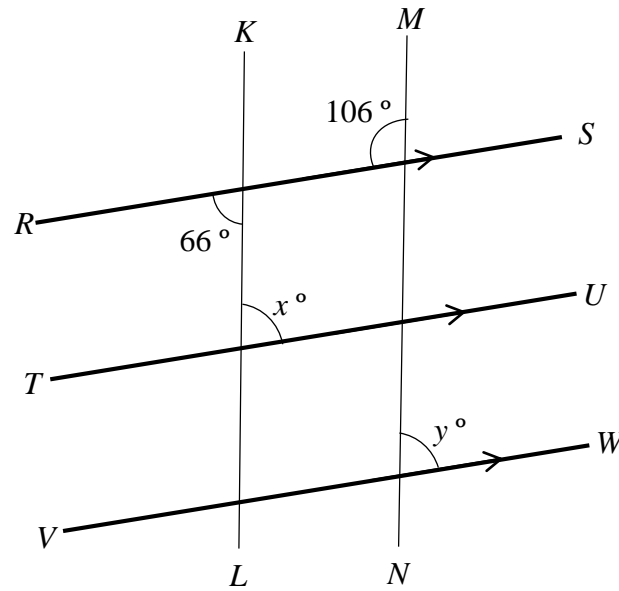
Hitung nilai w .

Calculate the value of w .

- A 20
- B 35
- C 55
- D 70

30 Rajah 13 menunjukkan tiga garis selari, RS , TU dan VW . KL dan MN ialah garis lurus.

Diagram 13 shows three parallel lines, RS , TU and VW . KL and MN is a straight line.



Rajah 13
Diagram 13

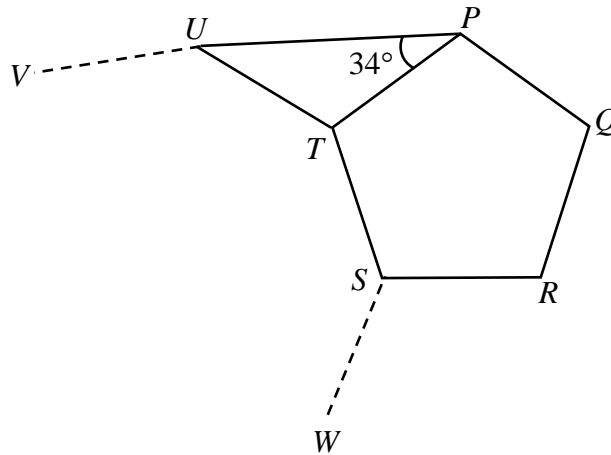
Hitung nilai $x + y$.

Calculate the value of $x + y$.

- A 114
- B 140
- C 172
- D 188

- 31 Rajah 14 menunjukkan sebuah pentagon sekata $PQRST$ dan sebuah segi tiga sama kaki PTU . $WSTUV$ ialah sebahagian daripada sebuah poligon sekata.

Diagram 14 shows a regular pentagon $PQRST$ and an isosceles triangle PTU . $WSTUV$ is part of a regular polygon.



Rajah 14
Diagram 14

Cari bilangan sisi bagi poligon sekata yang tidak lengkap itu.

Find the number of sides of the incomplete regular polygon.

- A 8
- B 9
- C 10
- D 11

- 32** Dalam satu pertandingan mencari harta karun, Siti bergerak dari Stesen A ke utara menuju Stesen B sejauh 93 m. Dia kemudian bergerak ke timur menuju ke Stesen C sejauh 37 m. Seterusnya, Siti bergerak pulang ke Stesen A. Dengan menganggap semua pergerakan Siti dalam garis lurus, hitung jarak, dalam m, Stesen A ke Stesen C.

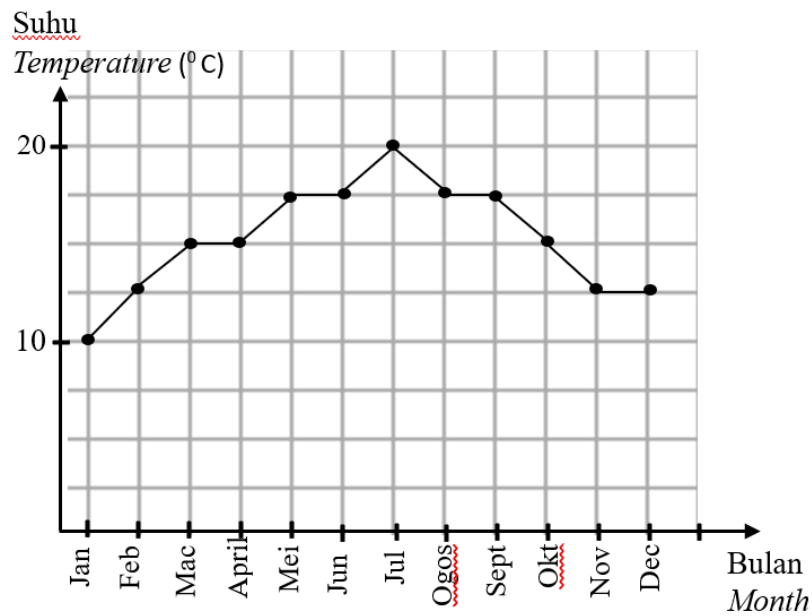
In a treasure hunt competition, Siti moves from Station A to the north towards Station B for a distance of 93 m. He then moves east towards Station C for a distance of 37 m. Next, Siti moves back to Station A. Assuming all of Siti's movements are in a straight line, calculate the distance, in m, from Station A to Station C.

- A** 64.50
- B** 85.32
- C** 100.08
- D** 100.09

- 33 Rajah 15 menunjukkan graf garis yang mewakili purata suhu bulanan bagi bandar Taipei sepanjang tahun 2022.

Diagram 15 shows a line graph represent the average monthly temprerature of Taipei town for the year of 2022.

PURATA SUHU BULANAN BANDAR TAIPEI TAHUN 2022
 AVERAGE MONTHLY TEMPRERATURE OF TAIPEI TOWN FOR THE YEAR OF 2022



Rajah 15
 Diagram 15

Hitung min suhu, dalam °C, bagi Bandar Taipei bagi tahun 2022.

Calculate the mean, in °C, of Taipei town for the year of 2022.

- A 15
- B 15.20
- C 15.21
- D 15.25

- 34** Di beri set $W = \{x: 1 \leq x < 68, x \text{ ialah gandaan } 13\}$. Suatu nombor dipilih secara rawak daripada set W . Tentukan ruang sampel bagi peristiwa tersebut.

Given set $W = \{x: 1 \leq x < 68, x \text{ is a multiple of } 13\}$. A number is selected at random from set W . Determine the sample space of the event.

A $\{1, 13, 26, 39, 52, 65, 68\}$

B $\{13, 26, 39, 52, 65, 68\}$

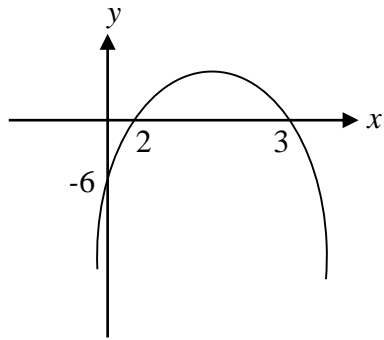
C $\{1, 13, 26, 39, 52, 65\}$

D $\{13, 26, 39, 52, 65\}$

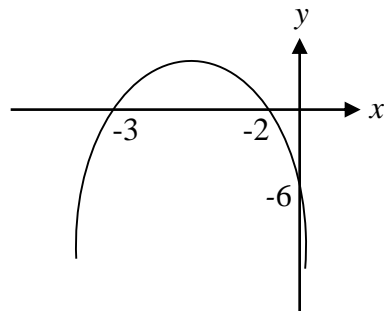
35 Graf manakah yang mewakili $f(x) = x^2 - x - 6$.

Which graph represent $f(x) = x^2 - x - 6$.

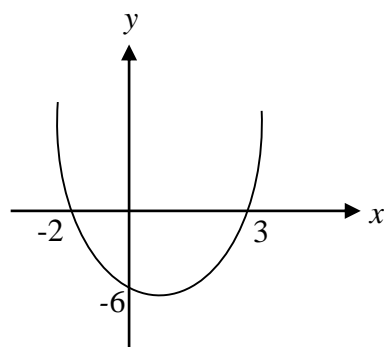
A



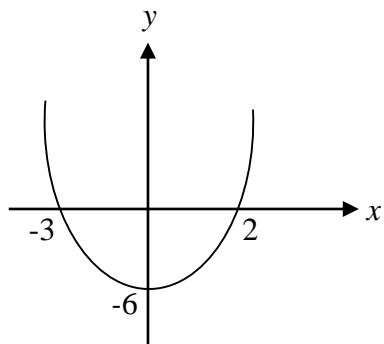
B



C

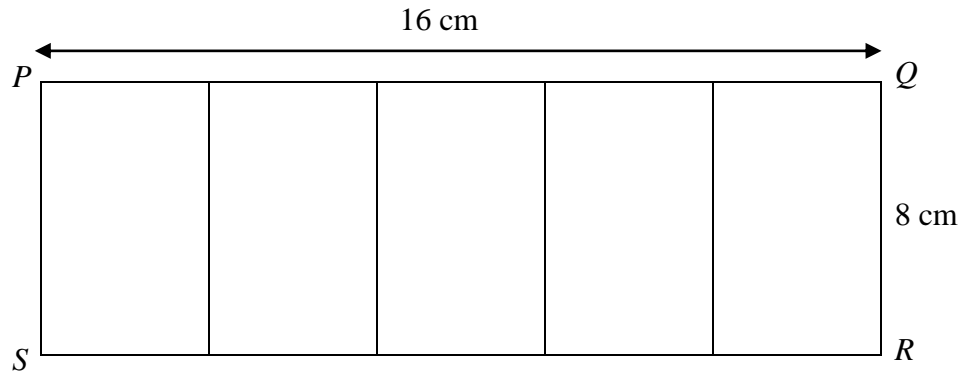


D



- 36** Rajah 16 menunjukkan lukisan berskala bagi pelan sebidang tanah segi empat $PQRS$ yang dibahagikan kepada lima kawasan yang sama luas.

Diagram 16 shows a scale drawing of a plan of a rectangular land $PQRS$ divided into five equally same areas.



Rajah 16
Diagram 16

Jika panjang sebenar PQ ialah 80 m, hitung jumlah luas sebenar bagi tiga kawasan.

If the actual length of the PQ is 80 m, calculate the actual area of three areas.

- A 160 m
- B 640 m
- C 1920 m
- D 3200 m

37 Diberi $P = \begin{pmatrix} 1 & -4 \\ -1 & 2 \end{pmatrix}$ dan $Q = \begin{pmatrix} 1 & 2x \\ -1 & 2 \end{pmatrix}$.

Given $P = \begin{pmatrix} 1 & -4 \\ -1 & 2 \end{pmatrix}$ and $Q = \begin{pmatrix} 1 & 2x \\ -1 & 2 \end{pmatrix}$.

Jika $P = Q$, hitung nilai x .

If $P = Q$, calculate the value of x .

A -2

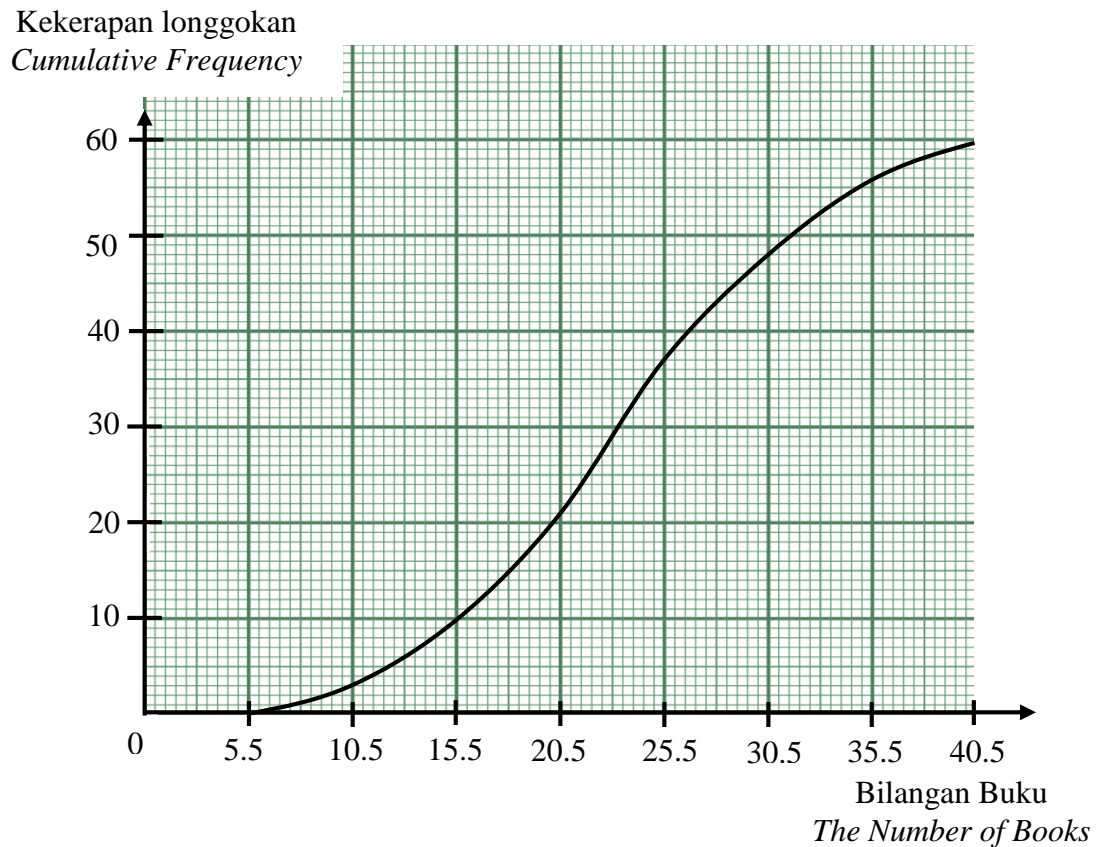
B $-\frac{1}{2}$

C $\frac{1}{2}$

D 2

- 38 Rajah 17 ialah satu ogive yang menunjukkan bilangan buku yang dibaca oleh sekumpulan murid dalam bulan Jun.

Diagram 17 is an ogive that shows the number of books read by a group of students in June.



Rajah 17
Diagram 17

Murid yang membaca buku melebihi persentil ke-80 layak menerima sijil.

Berapakah bilangan murid yang layak menerima sijil tersebut?

Students who read books above the 80th percentile are eligible to receive a certificate.

How many students are eligible to receive the certificate?

- A 12
- B 48
- C 60
- D 80

- 39 Rajah 18 menunjukkan urutan nombor Fibonacci dalam asas 3.

Diagram 18 shows a sequence of Fibonacci numbers in base 3.

0_3	1_3	1_3	2_3	10_3	12_3	22_3	X_3
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Rajah 18
Diagram 18

Nyatakan nilai X .

State the value of X .

- A 33
- B 34
- C 110
- D 111
- 40 Pada tahun 2022 Encik Fattah telah membuat potongan cukai bulanan (PCB) sebanyak RM250. Selepas membuat taksiran cukai pendapatan, Encik Fattah perlu membayar tambahan cukai kepada LHDN. Hitung cukai pendapatan yang mungkin dikenakan kepada Encik Fattah?

In 2022 Encik Fattah made a monthly tax deduction (PCB) of RM250. After making the income tax assessment, Mr. Fattah has to pay additional tax to the IRB. Calculate the income tax that may be charged to Mr. Fattah?

- A RM2 000
- B RM2 500
- C RM3 000
- D RM3 500

KERTAS PEPERIKSAAN TAMAT
END OF QUESTION PAPER

**MAKLUMAT UNTUK CALON
INFORMATION FOR CANDIDATES**

1. Kertas soalan ini mengandungi **40** soalan.
*This question paper consists of **40** questions.*
2. Jawab **semua** soalan.
*Answer **all** questions.*
3. Jawab setiap soalan dengan menghitamkan ruangan yang betul pada kertas jawapan objektif.
Answer each question by blackening the correct space on the objective answer sheet.
4. Hitamkan **satu** ruangan sahaja bagi setiap soalan.
*Blacken only **one** space for each question.*
5. Sekiranya anda hendak menukar jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baharu.
If you wish to change your answer, erase the blackened mark that you have done. Then blacken the space for the new answer.
6. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
The diagram in the questions provided are not drawn to scale unless stated.
7. Satu senarai rumus disediakan di halaman 2 hingga 4.
A list of formulae is provided on page 2 to 4.
8. Anda dibenarkan menggunakan kalkulator saintifik.
You may use a scientific calculator.