

**PROGRAM GEMPUR KECEMERLANGAN
SIJIL PELAJARAN MALAYSIA 2026**

**ANJURAN BERSAMA
MAJLIS PENGETUA SEKOLAH MALAYSIA NEGERI PERLIS
DAN
MAJLIS GURU CEMERLANG NEGERI PERLIS**

**GEMPUR KECEMERLANGAN SPM 2026
MATEMATIK**

1449/1

Kertas 1

1 jam 30 minit

Satu jam tiga puluh minit

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

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

Kertas soalan ini mengandungi 43 halaman bercetak

**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 $a^{\frac{m}{n}} = (a^{\frac{1}{n}})^m = \left(a^{\frac{1}{n}}\right)^m$
- 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, $MV = P \left(1 + \frac{r}{n}\right)^n$
- 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)
Jumlah insurans yang harus dibeli = (Peratusan ko - insurans) $\times$ (Nilai boleh insurans harta)

**PERKAITAN DAN ALGEBRA
RELATIONSHIP AND ALGEBRA**

- 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 = $\frac{\text{Jumlah jarak}}{\text{Jumlah masa}}$
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 $m = -\frac{\text{pintasan} - y}{\text{pintasan} - x}$
 $m = -\frac{y - \text{intercept}}{x - \text{intercept}}$

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 = $\frac{4}{3} \pi r^3$
 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, $\sigma = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}} = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2}$
- 7 $P(A) = \frac{n(A)}{n(S)}$
- 8 $P(A') = 1 - P(A)$

- 1 Bundarkan 0.01255 betul kepada tiga angka bererti.
Round off 0.01255 correct to three significant figures.
- A 0.012
- B 0.013
- C 0.0125
- D 0.0126
- 2 Hitung $0.215 - 0.0248 \div 4.33$ dan berikan jawapan anda dalam bentuk piawai.
Calculate $0.215 - 0.0248 \div 4.33$ and give your answer in standard form.
- A 2.092×10^{-1}
- B 2.093×10^{-1}
- C 4.392×10^{-2}
- D 4.393×10^{-2}

- 3 Ringkaskan:
Simplify:

$$\left(\frac{8x^3}{y^3}\right)^3 + x^3y^2$$

A $\frac{2}{xy^3}$

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

C $\frac{2x}{y^3}$

D $\frac{2x^5}{y}$

- 4 Rajah 1 menunjukkan satu pernyataan bagi suatu pola nombor.
Diagram 1 shows a statement of a number pattern.

“Mendarab 3 kepada nombor sebelumnya”
“Multiply 3 to the previous number”

Rajah 1
Diagram 1

Antara berikut yang manakah memuaskan pola tersebut?
Which of the sequences satisfy the pattern?

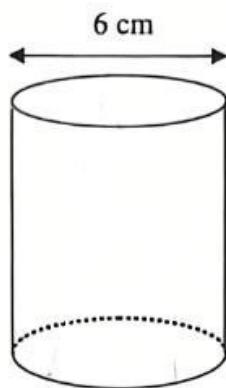
A 1, 4, 7, 10, ...

B 2, 6, 9, 18, ...

C 3, 9, 27, 81, ...

D 4, 12, 36, 109, ...

- 5 Rajah 2 menunjukkan sebuah silinder dengan isipadunya $72\pi \text{ cm}^3$.
Diagram 2 shows a cylinder with a volume of $72\pi \text{ cm}^3$.



Rajah 2
Diagram 2

Hitung luas permukaan melengkung, dalam cm^2 , silinder itu.
Calculate the curved surface area, in cm^2 , of the cylinder.

- A 24π
B 48π
C 66π
D 96π



- 6 Rajah 3 menunjukkan proses dalam pengurusan kewangan.
Diagram 3 shows the process in the financial management.

P	:	Melaksanakan pelan kewangan. <i>Implement a financial plan.</i>
Q	:	Mewujudkan pelan kewangan. <i>Creating a financial plan.</i>
R	:	Menilai kedudukan kewangan. <i>Evaluate a financial position.</i>
S	:	Menetapkan matlamat kewangan. <i>Set financial goals.</i>
T	:	Mengkaji semula dan menyemak kemajuan. <i>Review the progress.</i>

Rajah 3
Diagram 3

Tentukan susunan yang betul.
Determine the correct arrangement.

- A Q, R, S, P, T
- B S, Q, R, P, T
- C R, Q, S, P, T
- D S, R, Q, P, T

- 7 Adib mempunyai wang sebanyak RM40. Dia membeli sebungkus nasi lemak di sebuah gerai dengan harga RM2.50. Kemudian dia membeli secawan kopi di Fchass Cafe yang mengenakan cukai perkhidmatan sebanyak 6%.

Hitung harga asal secawan kopi, jika baki wangnya ialah RM21.60.

Adib has RM40. He buys a packet of nasi lemak at a stall for RM2.50. Then he buys a cup of coffee at Eshass Cafe which charges a service tax of 6%.

Calculate the original price of a cup of coffee, if the balance of the money is RM21.60.

A RM18.02

B RM17.36

C RM15.90

D RM15.00

- 8 Jadual 1 menunjukkan harga premium bagi insurans perjalanan yang ditawarkan oleh Syarikat Rehlah Takaful Berhad.

Table 1 shows the premium prices for travel insurance offered by Syarikat Rehlah Takaful Berhad.

Bilangan hari <i>Number of days</i>	Pemegang polisi (RM) <i>Policy holder</i> (RM)		Pemegang polisi dan pasangan (RM) <i>Policyholder and spouse</i> (RM)		Keluarga (RM) <i>Family</i> (RM)	
	Asia	Eropah <i>Europe</i>	Asia	Eropah <i>Europe</i>	Asia	Eropah <i>Europe</i>
1-5	39	53	69	98	87	133
6-10	58	79	107	150	136	184
11-18	79	127	152	246	218	304
Premium tahunan (berumur 18-69 tahun) <i>Annual premium</i> (18-69 years old)	230	280				

Jadual 1

Table 1

Antara berikut manakah **BUKAN** faktor yang mempengaruhi perbezaan harga premium insurans perjalanan?

*Which of the following is **NOT** a factor that affects the price difference of travel insurance premiums?*

- A Bilangan orang yang diinsuranskan
Number of the insured person
- B Destinasi perjalanan
Destination of traveling
- C Tempoh perjalanan
Period of traveling
- D Jantina
Gender

- 9 Najwa ingin membeli satu polisi insurans motor untuk keretanya.
Rajah 4 menunjukkan maklumat tentang kereta Najwa.
Najwa wants to buy a motor insurance policy for her car.
Diagram 4 shows information about Najwa's car.

Jumlah yang ingin diinsuranskan <i>The amount to be insured</i>	: RM90 000
Umur kenderaan <i>Vehicle age</i>	: 6 tahun : 6 years
Kapasiti enjin <i>Engine capacity</i>	: 2100 cc
NCD	: 40%

Rumus mengira premium asas polisi komprehensif:
Formula to calculate the basic premium of the comprehensive policy:

Kadar bagi RM1 000 pertama + RM26 bagi setiap RM1 000 atau sebahagian daripada itu bagi nilai melebihi RM1 000. <i>Rate for the first RM1 000 + RM26 for each RM1 000 or part thereof on value exceeding the first RM1 000.</i>
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Rajah 4
Diagram 4

Kadar untuk RM1000 pertama bagi jumlah yang diinsuranskan bagi polisi komprehensif ialah RM339.10.
Hitung premium kasar yang perlu dibayar oleh Najwa.
The rate for the first RM1000 of the sum insured for a comprehensive policy is RM339.10.
Calculate the gross premium that Najwa has to pay.

- A RM925.60
- B RM1 061.24
- C RM1 388.40
- D RM1 591.86

- 10 Diberi bahawa perimeter sebuah segi empat sama ialah $(8x + 24)$ cm dan panjang satu sisinya ialah 32 cm.

Tentukan nilai x .

Given that the perimeter of a square is $(8x + 24)$ cm and the length of one side is 32 cm.

Determine the value of x .

A 1

B 5

C 13

D 19

- 11 Permudahkan

Simplify

$$\frac{(n-4)^2(m-2n)^2}{2m \cdot mn}$$

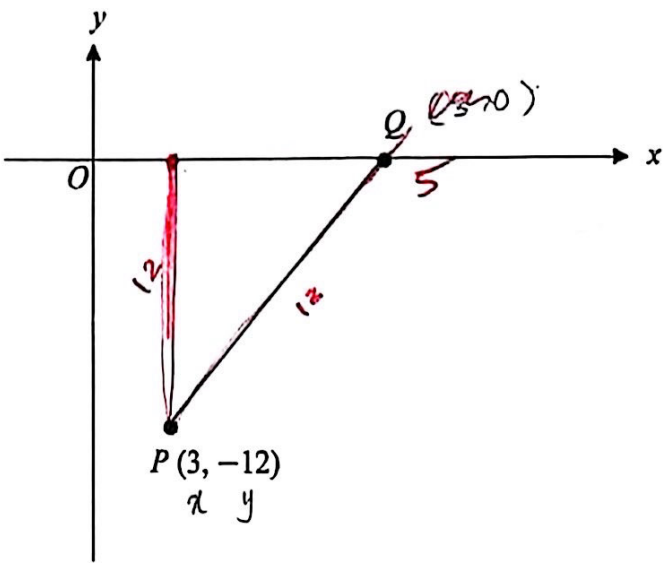
A $\frac{n-2}{2n}$

B $\frac{n+2}{2n}$

C $\frac{mn+8n+2m}{2mn}$

D $\frac{mn-8n-2m}{2mn}$

- 12 Rajah 5 menunjukkan garis lurus PQ pada suatu satah Cartes.
Diagram 5 shows straight line PQ on a Cartesian plane.



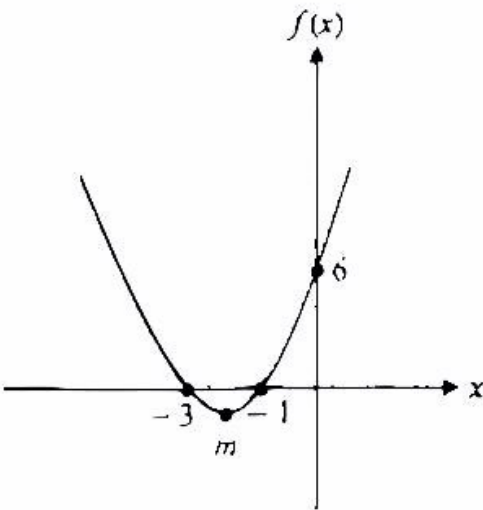
Rajah 5
Diagram 5.

Diberi $PQ = 13$ unit, cari pintasan- x bagi garis lurus PQ .
Given $PQ = 13$ units, find the x -intercept of the straight line PQ .

- A 12
- B 8
- C 7
- D 5

- 13 Rajah 6 menunjukkan graf fungsi kuadratik $f(x) = ax^2 + 8x + c$ dengan keadaan a dan c ialah pemalar dengan titik minimum m .

Diagram 6 shows a quadratic function graph $f(x) = ax^2 + 8x + c$ such that a and c are constants with minimum point, m .



Rajah 6
Diagram 6

Tentukan nilai-nilai bagi a , c dan koordinat bagi m .
Determine the values of a , c and the coordinates of m .

	a	c	m
A	1	6	(2, -1)
B	1	8	(-2, -2)
C	2	6	(-2, -2)
D	2	8	(-2, -2)

- 14 Pak Din menanam dua jenis sayur-sayuran iaitu kubis dan cili. Bilangan pokok kubis, x , yang ditanam sekurang-kurangnya tiga kali bilangan pokok cili, y .

Antara ketaksamaan berikut yang manakah mewakili situasi tersebut?

Pak Din plants two types of vegetables, that are cabbage and chilli. The number of cabbage plants, x , planted is at least three times the number of chilli plants, y .

Which of the following inequalities represents the situation?

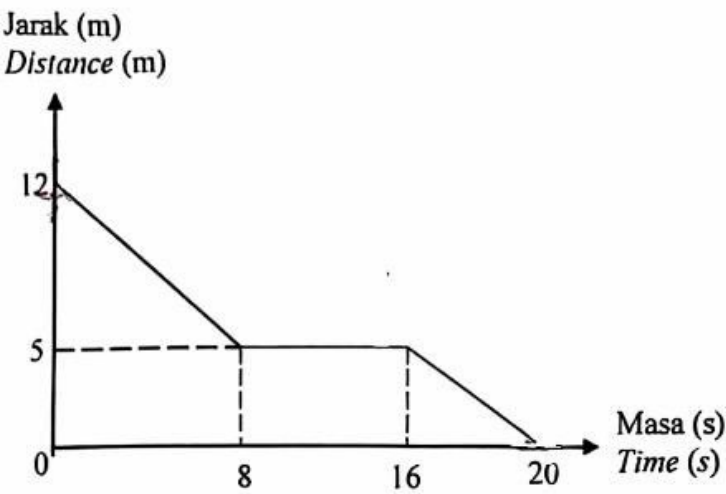
A $x < 3y$

B $x > 3y$

C $x \leq 3y$

D $x \geq 3y$

- 15 Rajah 7 menunjukkan graf jarak-masa sebuah basikal untuk tempoh 20 saat.
Diagram 7 shows the distance-time graph of a bicycle for a period of 20 seconds.



Rajah 7
Diagram 7

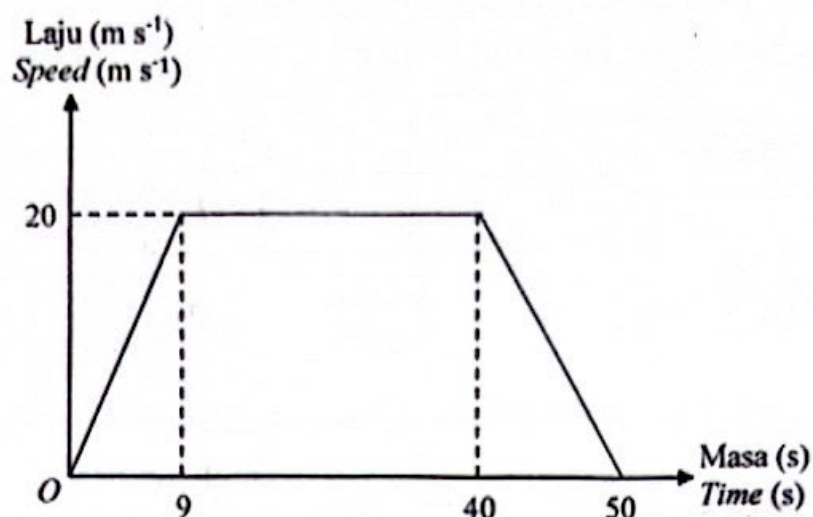
Hitung laju purata, dalam m s^{-1} , basikal itu.
Calculate the average speed, in m s^{-1} , of the bicycle.

- A 0.60
- B 0.63
- C 0.75
- D 1.50



- 16 Rajah 8 menunjukkan graf laju-masa bagi pergerakan sebuah kereta.

Diagram 8 shows the speed-time graph for the movement of a car.



Rajah 8
Diagram 8

Nyatakan tempoh masa, dalam saat, kereta itu bergerak dalam laju seragam.

State the period of time, in seconds, that the car travels at a uniform speed.

- A 9
- B 31
- C 40
- D 50

- 17 Diberi bahawa x berubah secara langsung dengan kuasa dua y .

Jika $x = 192$ apabila $y = 8$. Ungkapkan x dalam sebutan y .

Given that x varies directly as the square of y .

If $x = 192$ when $y = 8$. Express x in terms of y .

A $x = 3y^2$

B $x = \frac{y^2}{3}$

C $x = 12y^2$

D $x = 24y^2$

- 18 Nilai rintangan, R , bagi sejenis dawai berubah secara songsang dengan kuasa dua jejaringnya, j .

Diberi bahawa rintangan dawai ialah 0.6 apabila jejaringnya ialah 0.05.

Cari jejaringnya apabila rintangan dawai ialah 0.15.

The resistance, R , of a wire varies inversely as the square of its radius, j .

Given that the resistance of a wire is 0.6 when the radius is 0.05.

Find the radius when the resistance of a wire is 0.15.

A 0.025

B 0.100

C 0.200

D 0.500

- 19 Jadual 2 menunjukkan nilai-nilai pemboloh ubah r , u dan t .
Table 2 shows the values of the variables r , u and t .

r	8	20
u	20	x
t	25	64

Jadual 2
Table 2

Diberi r berubah secara langsung dengan u dan secara songsang dengan punca kuasa dua t .
Hitung nilai x .
Given that r varies directly as u and inversely as the square root of t .
Calculate the value of x .

- A 40
- B 60
- C 80
- D 160

20 Diberi

Given

$$\begin{bmatrix} 3 \\ -2 \\ 4 \end{bmatrix} - G + \begin{bmatrix} 6 \\ -5 \\ 6 \end{bmatrix} = \begin{bmatrix} 5 \\ -14 \\ 12 \end{bmatrix}$$

Cari matriks G .*Find matrix G .*

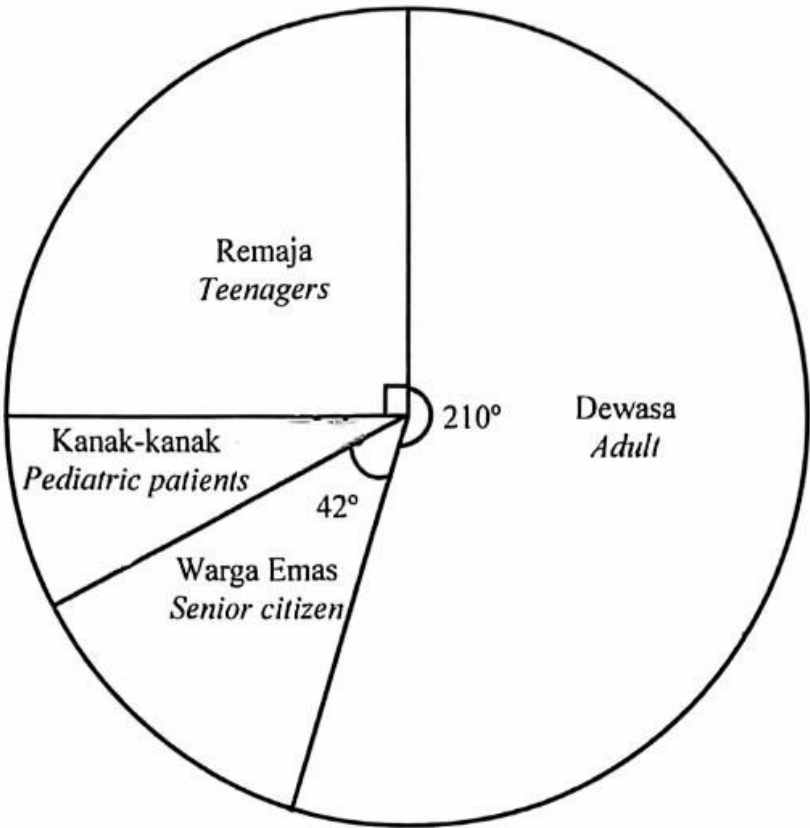
A $\begin{bmatrix} -4 \\ 9 \\ -2 \end{bmatrix}$

B $\begin{bmatrix} -4 \\ 9 \\ 2 \end{bmatrix}$

C $\begin{bmatrix} 4 \\ 7 \\ -2 \end{bmatrix}$

D $\begin{bmatrix} 4 \\ 7 \\ 2 \end{bmatrix}$

- 21 Rajah 9 menunjukkan carta pai bagi bilangan pesakit di sebuah hospital pada suatu masa tertentu. Bilangan pesakit kanak-kanak ketika itu ialah 6 orang.
- Diagram 9 shows the pie chart of the number of patients in a hospital at a certain time. The number of pediatric patients who visit at that time is 6.*



Rajah 9
Diagram 9

Hitung jumlah pesakit dewasa dan remaja.

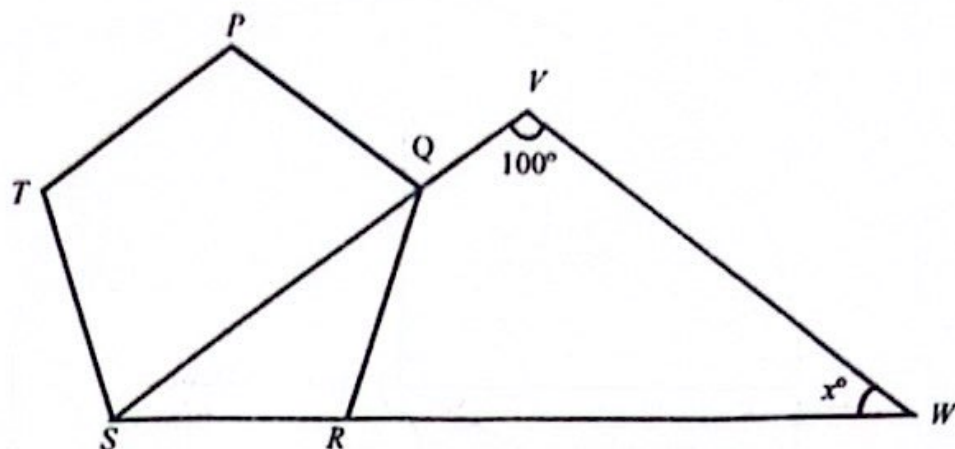
Calculate the total number of adult and teenagers' patients.

- A 100
- B 120
- C 300
- D 310

- 22 Rajah 10 menunjukkan sebuah pentagon sekata $PQRST$ dan sebuah segitiga SVW . SQV dan SRW ialah garis lurus.

Diagram 10 shows a regular pentagon $PQRST$ and a triangle SVW .

SQV and SRW are straight lines.



Rajah 10
Diagram 10

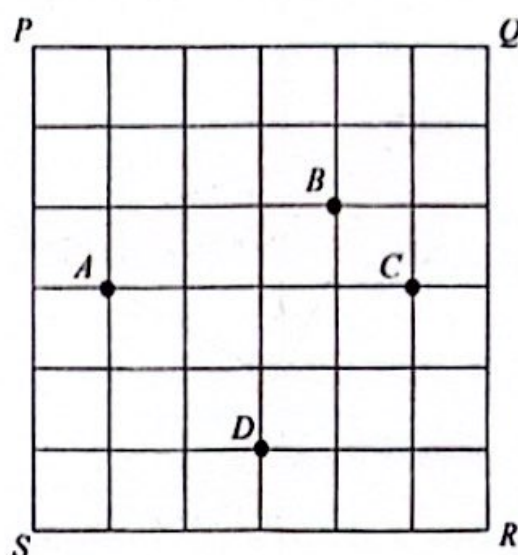
Cari nilai x .

Find the value of x .

- A 20
- B 36
- C 44
- D 50

- 23 Rajah 11 menunjukkan sebuah segi empat sama $PQRS$ yang dilukis pada grid segi empat sama bersisi satu unit. M ialah satu titik yang bergerak dalam rajah itu supaya jaraknya sentiasa sama dari garis PS dan SR .

Diagram 11 shows a square $PQRS$ drawn on a square grid of side one unit. M is a point that moves within the diagram such that it is always equidistance from line PS and SR .



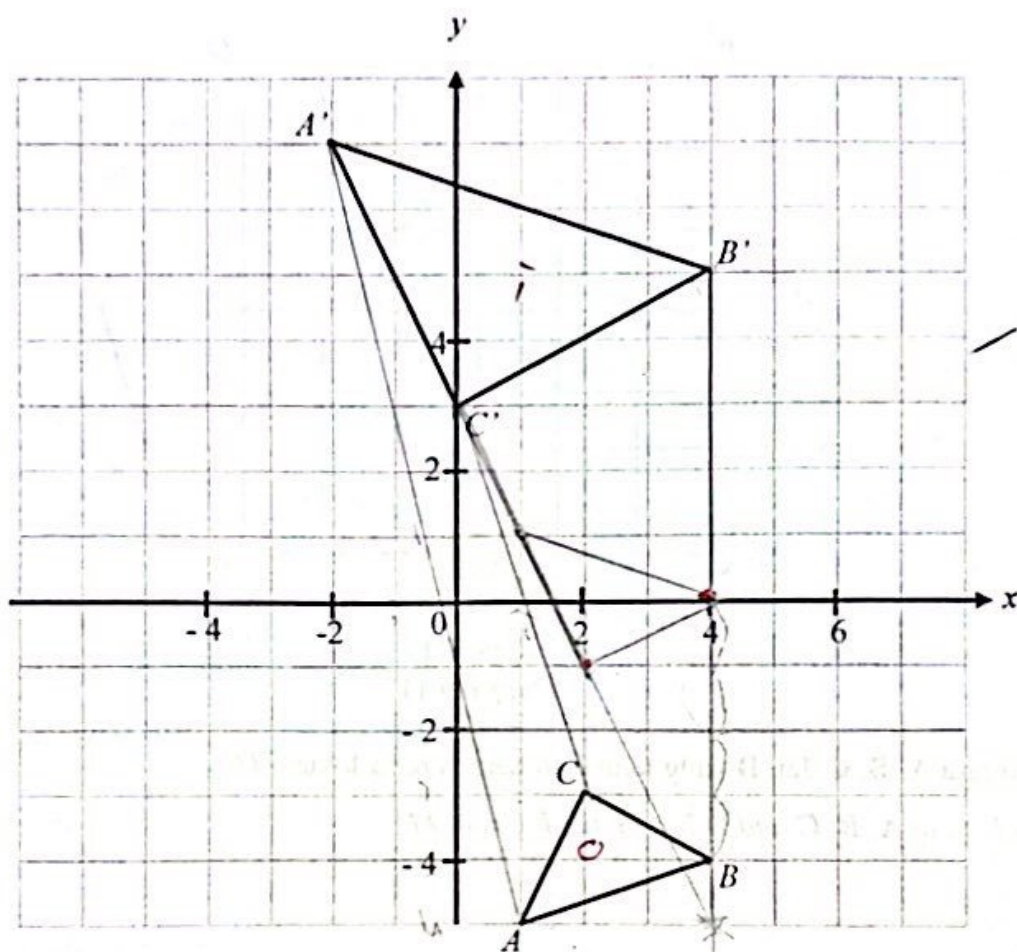
Rajah 11
Diagram 11

Antara A, B, C dan D yang manakah berada pada lokus M ?

Which of A, B, C and D lies on the locus of M ?

- 24 Rajah 12 menunjukkan segi tiga $A'B'C'$ ialah imej bagi segi tiga ABC di bawah satu gabungan transformasi PQ . Diberi Q ialah pantulan pada garis $y = -2$.

Diagram 12 shows a triangle $A'B'C'$ is an image of triangle ABC under a combined transformations PQ . Given Q is a reflection in the line $y = -2$.



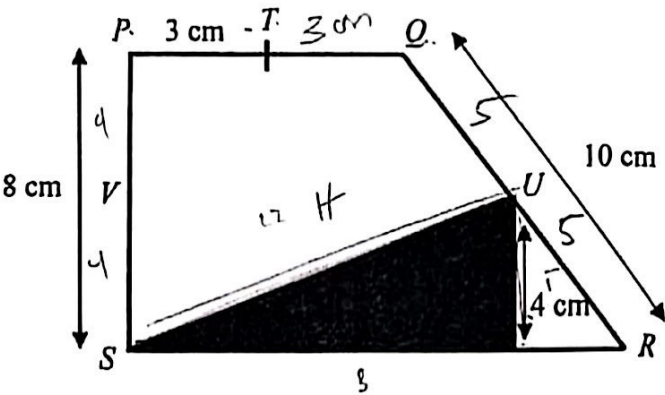
Rajah 12
Diagram 12

Tentukan pusat pembesaran bagi P .

Determine the enlargement point of P .

- A $(-5, 4)$
- B $(-4, 4)$
- C $(4, -4)$
- D $(4, -5)$

- 25 Rajah 13 menunjukkan sebuah trapezium $PQRS$.
Diagram 13 shows a trapezium $PQRS$.



Rajah 13
Diagram 13

Diberi perimeter seluruh rajah ialah 36 cm.
Panjang $PT = TQ$ dan $QU = UR$.
Cari luas, dalam cm^2 , kawasan yang berlorek.
*Given that the perimeter of the whole diagram is 36 cm.
Length of $PT = TQ$ and $QU = UR$.
Calculate area, in cm^2 , of the shaded region.*

- A 18
- B 36
- C 48
- D 60

26 Diberi, $L = \frac{\sqrt{5M+2}}{3}$, ungkapkan M dalam sebutan L .

Given $L = \frac{\sqrt{5M+2}}{3}$, express M in terms of L .

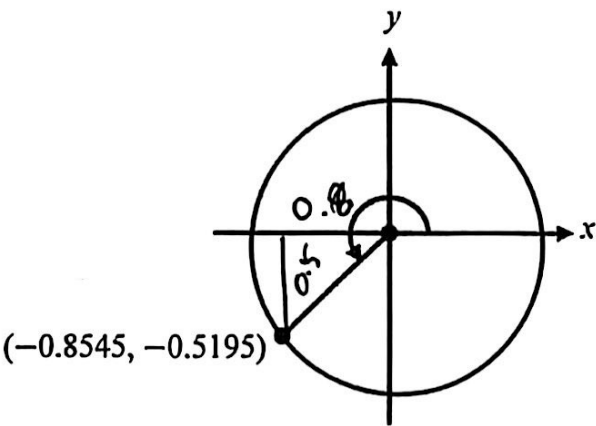
A $M = \frac{9L^2 - 2}{5}$

B $M = \frac{9L^2 + 2}{5}$

C $M = \frac{3L^2 - 2}{5}$

D $M = \frac{3L^2 + 2}{5}$

27 Rajah 14 menunjukkan satu bulatan unit.
Diagram 14 shows a unit circle.

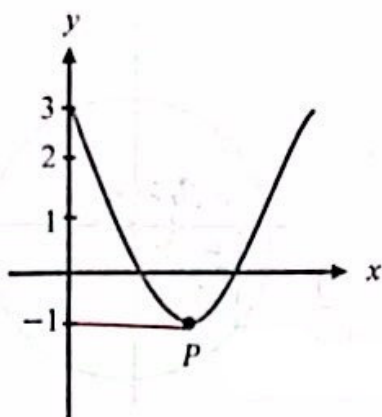


Rajah 14
Diagram 14

Cari nilai θ .
Find the value of θ .

- A $238^{\circ} 42'$
- B $238^{\circ} 24'$
- C $211^{\circ} 18'$
- D $211^{\circ} 14'$

- 28 Rajah 15 menunjukkan graf $y = 2 \cos x + 1$.
Diagram 15 shows the graph of $y = 2 \cos x + 1$.



Rajah 15
Diagram 15

Cari koordinat P .

Find the coordinate of P .

- A $(45^\circ, -1)$
B $(90^\circ, -1)$
C $(135^\circ, -1)$
D $(180^\circ, -1)$

- 29 Pernyataan di bawah adalah songsangan bagi suatu implikasi.

The statement below is the inverse of an implication.

Jika $m + 4 \neq 12$ maka $m \neq 8$

If $m + 4 \neq 12$ then $m \neq 8$

Antara berikut, yang manakah adalah akas bagi implikasi tersebut?

Which of the following is the converse of the implication?

- A Jika $m + 4 \neq 12$ maka $m \neq 8$

If $m + 4 \neq 12$ then $m \neq 8$

- B Jika $m + 4 = 12$ maka $m = 8$

If $m + 4 = 12$ then $m = 8$

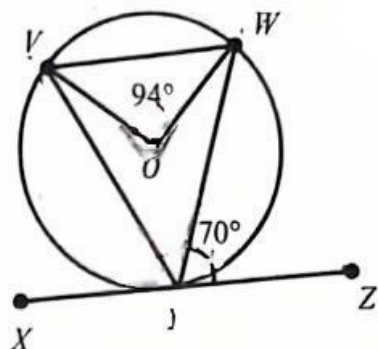
- C Jika $m \neq 8$ maka $m + 4 \neq 12$

If $m \neq 8$ then $m + 4 \neq 12$

- D Jika $m = 8$ maka $m + 4 = 12$

If $m = 8$ then $m + 4 = 12$

- 30 Dalam Rajah 16, XYZ ialah tangen kepada bulatan berpusat di O .
In Diagram 16, XYZ is a tangent to the circle with centre O .



Rajah 16
Diagram 16

Cari $\angle VWY$.

Find $\angle VWY$.

A 43°

B 56°

C 63°

D 70°

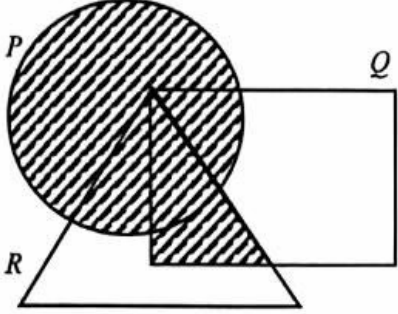
31 Gambar rajah Venn menunjukkan set P , set Q dan set R dengan keadaan set semesta, $\xi = P \cup Q \cup R$.

Antara berikut, yang manakah mewakili $[(Q \cap R) \cup P]'$.

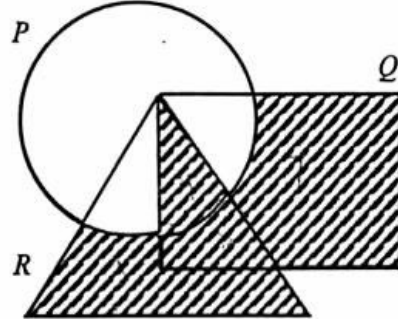
The Venn diagram shows set P , set Q and set R such that the universal set, $\xi = P \cup Q \cup R$.

Which of the following represents $[(Q \cap R) \cup P]'$.

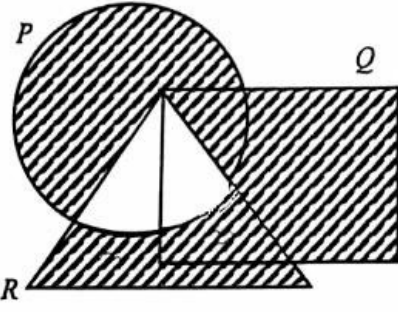
A



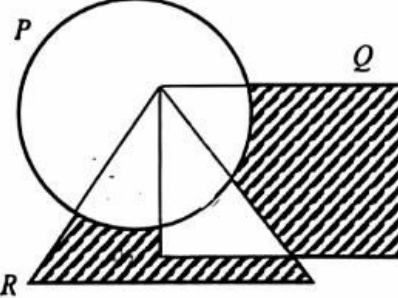
B



C

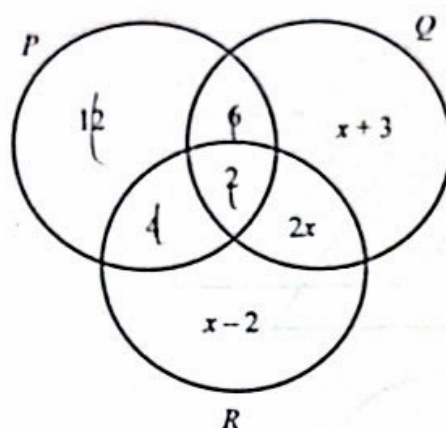


D



- 32 Rajah 17 ialah gambar rajah Venn yang menunjukkan bilangan pembeli motosikal di dalam set P , set Q dan set R . Diberi set $P = \{\text{Pembeli skuter}\}$, set $Q = \{\text{Pembeli kapcai}\}$, dan set $R = \{\text{Pembeli superbike}\}$.

Diagram 17 is a Venn diagram that shows the number of motorcycle buyers in set P , set Q and set R . Given set $P = \{\text{Buyers of scooter}\}$, set $Q = \{\text{Buyers of kapcai}\}$, and set $R = \{\text{Buyers of superbike}\}$.



Rajah 17
Diagram 17

Diberi jumlah pembeli motosikal pada hari tersebut adalah seramai 65 orang.

Cari nilai x .

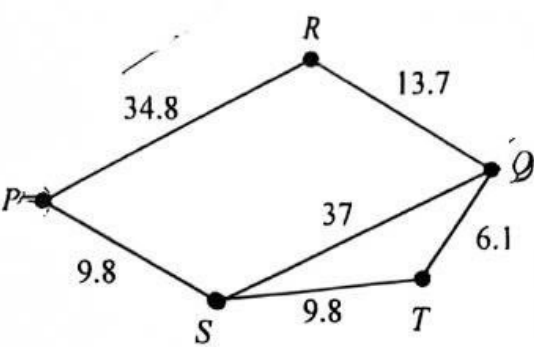
Given that the number of motorcycle buyers that day is 65 people.

Find the value of x .

- A 24
- B 20
- C 10
- D 6

33 Rajah 18 menunjukkan graf berpemberat perjalanan Ben dari Kedai *P* ke Kedai *Q*, melalui beberapa kedai iaitu Kedai *R*, Kedai *S* dan Kedai *T*.

Diagram 18 shows weighted graph Encik Ben's journey from Shop P, Shop Q, Shop R and Shop T.



Rajah 18
Diagram 18

Tentukan jarak terpanjang yang dilalui oleh Ben dari Kedai *P* ke Kedai *Q*.

Determine the longest distance traveled by Ben from Shop P to Shop Q.

- A 25.7
- B 46.8
- C 48.5
- D 56.8

34. Markah yang diperolehi oleh sekumpulan murid dalam satu kuiz Matematik adalah 20, 25, 22, 28, dan 22. Setelah dibuat semakan semula, markah setiap murid telah ditambah sebanyak 3.

Apakah nilai min yang baru bagi markah tersebut?

The scores obtained by a group of pupils in a Mathematics quiz were 20, 25, 22, 28, and 22. After rechecking, each pupil's score was increased by 3.

What is the new mean value for these scores?

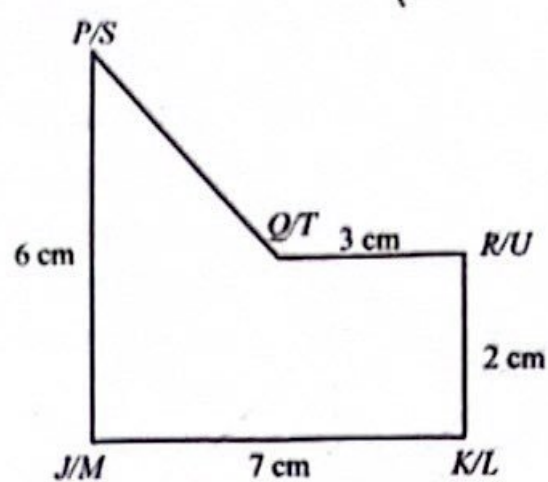
A 23.0

B 23.4

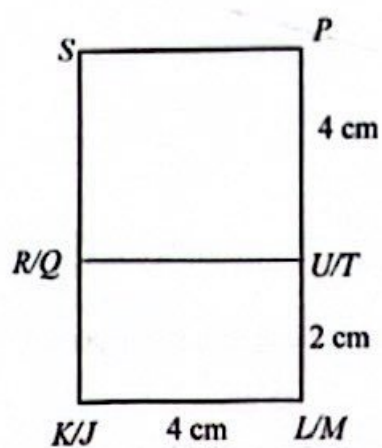
C 24.0

D 26.4

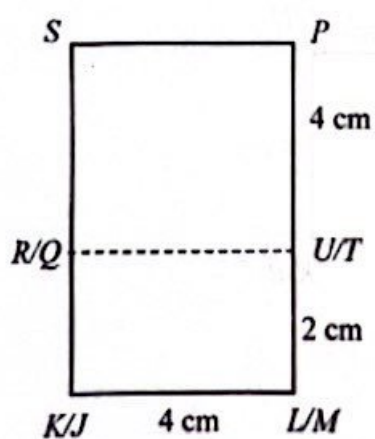
B



C



D



- 36 Jadual 3 menunjukkan penggunaan komputer riba dan telefon bimbit mengikut jantina di sebuah kolej.

Table 3 shows the usage of laptops and handphones according to gender at a college.

Jantina Gender	Komputer riba Laptop	Telefon bimbit Handphone
Lelaki Male	19	71
Perempuan Female	84	4

Jadual 3
Table 3

Hitung kebarangkalian seorang pelajar yang dipilih ialah pengguna komputer riba?

Calculate the probability that a student chosen is a laptop user?

- A

19

103
- B

75

178
- C

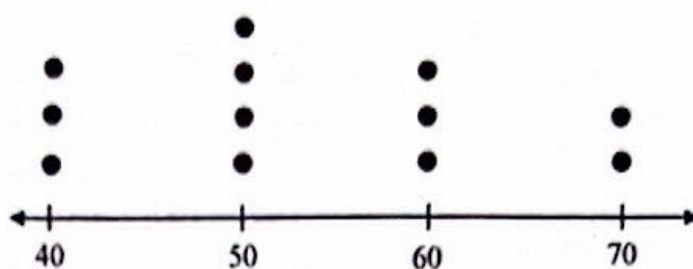
103

178
- D

84

103

- 37 Rajah 20 menunjukkan plot titik yang mewakili jisim, dalam kg, 12 orang murid.
Diagram 20 shows a dot plot that represents the mass, in kg, of 12 pupils.



Jisim murid
Mass of pupils

Rajah 20
Diagram 20

Tentukan mod.

Determine the mode.

- A 40
- B 50
- C 60
- D 70

- 38 Jadual 4 menunjukkan nilai $\sum x$ dan nilai $\sum x^2$ bagi 9 orang murid dalam satu kuiz
Table 4 shows the value of $\sum x$ and $\sum x^2$ for 9 students in a quiz.

$\sum x$	$\sum x^2$
1 485	245 645

Jadual 4
Table 4

Hitung varians bagi data tersebut.
Calculate the variance of the data.

- A

68.89
- B

68.88
- C

8.30
- D

8.29

- 39 Daud menerima wang persaraan sebanyak RM420 000 dan menggunakan semua wang itu untuk membeli sebuah rumah. Selepas 10 tahun, Daud menjual rumahnya dengan nilai 40% lebih daripada harga beli. Sepanjang tempoh itu, Daud telah menyewakan rumahnya sebanyak RM800 sebulan.

Jadual 5 menunjukkan senarai perbelanjaan yang terlibat dalam urusan pembelian sebuah rumah.

Daud received a retirement pension of RM420 000 and used all of the money to buy a house. After 10 years, Daud sold his house for 40% more than the purchase price.

During that period, Daud has rented the house for RM800 per month.

Table 5 shows a list of expenses involved in purchasing a house.

Duti setem <i>Stamp duty</i>	RM3 000
Komisen ejen <i>Agent's commission</i>	RM4 900
Kos guaman <i>Legal fees</i>	RM7 500

Jadual 5
Table 5

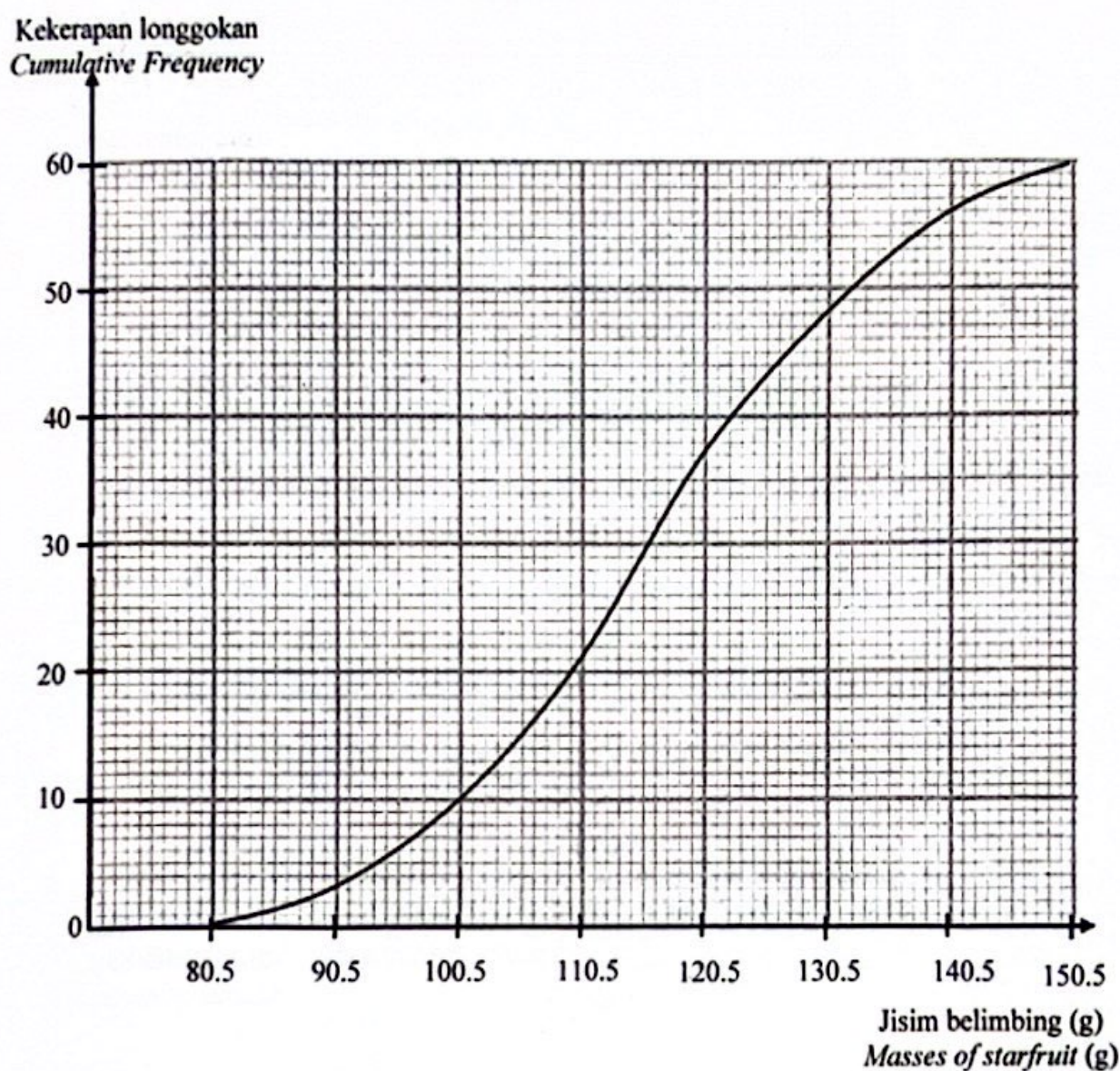
Hitung nilai pulangan pelaburan Daud.

Calculate Daud's return on investment.

- A 38.24%
- B 38.62%
- C 57.10%
- D 59.19%

- 40 Rajah 21 menunjukkan ogif bagi jisim belimbing, dalam g, bagi 60 biji buah belimbing dalam bulan Mei.

Diagram 21 shows an ogive of masses of starfruit, in g, of 60 starfruits in May.

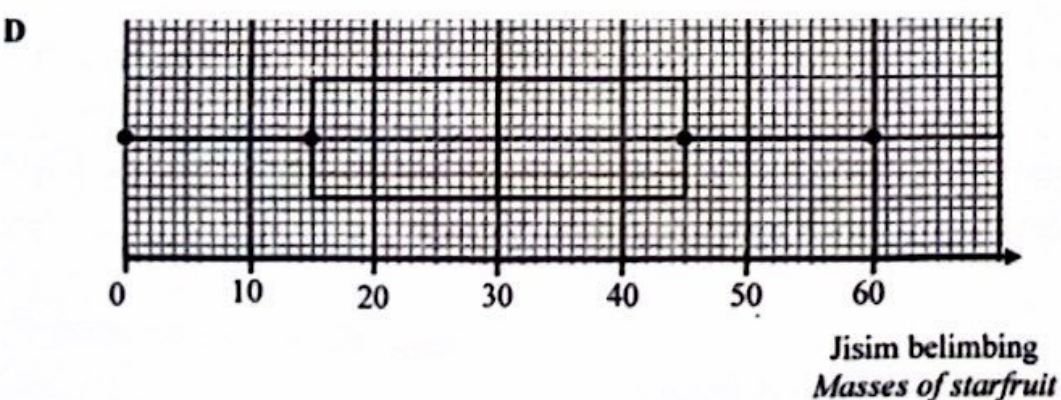
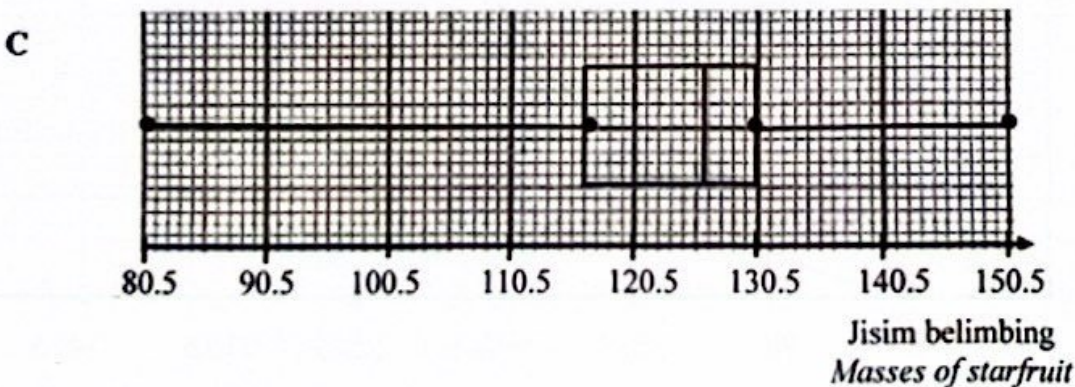
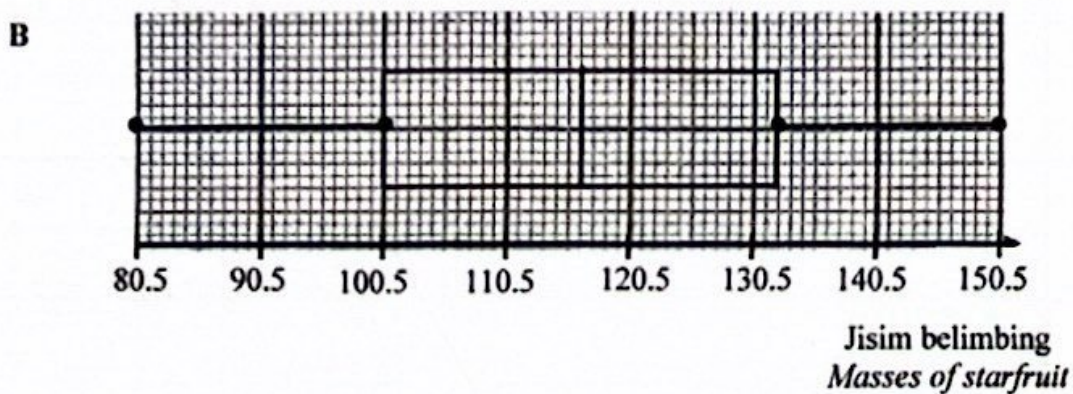
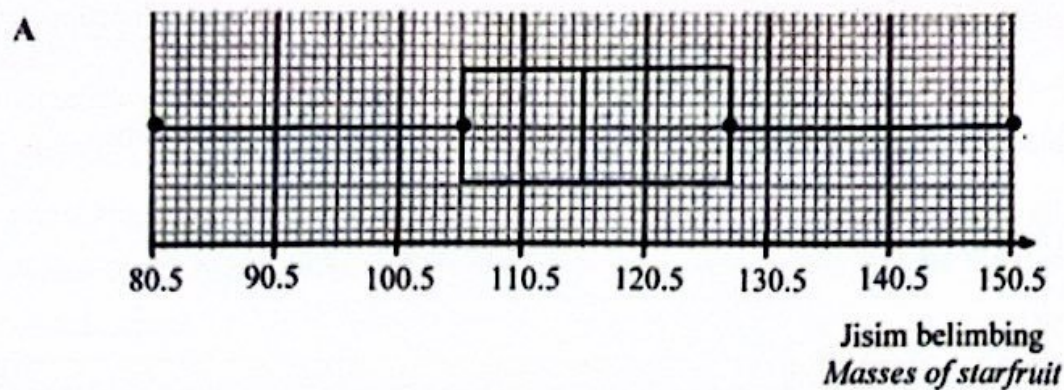


Rajah 21
Diagram 21

Antara plot kotak berikut, yang manakah mewakili ogif tersebut?

Which of the following box plots represents the ogive?





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.