

**PROGRAM GEMPUR KECEMERLANGAN SPM
NEGERI PERLIS**

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

**GEMPUR KECEMERLANGAN TAHUN 2025
TINGKATAN 5
MATEMATIK**

1449/1

Julai

Kertas 1

1 ½ 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 39 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 $a^{\frac{m}{n}} = (a^m)^{\frac{1}{n}} = \left(a^{\frac{1}{n}}\right)^m$
- 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)
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 = $\pi d = 2 \pi r$
Circumference of circle = $\pi d = 2 \pi r$
- 4 Luas bulatan = πr^2
Area of circle = πr^2
- 5 $\frac{\text{Panjang lengkok}}{2 \pi r} = \frac{\theta}{360^\circ}$
 $\frac{\text{Arc length}}{2 \pi r} = \frac{\theta}{360^\circ}$
- 6 $\frac{\text{Luas sektor}}{\pi r^2} = \frac{\theta}{360^\circ}$
 $\frac{\text{Area of sector}}{\pi r^2} = \frac{\theta}{360^\circ}$
- 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 = $2 \pi r^2 + 2 \pi rh$
Surface area of cylinder = $2 \pi r^2 + 2 \pi rh$
- 10 Luas permukaan kon = $\pi r^2 + \pi rs$
Surface area of cone = $\pi r^2 + \pi rs$
- 11 Luas permukaan sfera = $4 \pi r^2$
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 = $\pi r^2 h$
Volume of cylinder = $\pi r^2 h$
- 14 Isi padu kon = $\frac{1}{3} \pi r^2 h$
Volume of cone = $\frac{1}{3} \pi r^2 h$

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SULIT

- 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 Ungkapkan 111010_2 sebagai nombor dalam asas sembilan.

Express 111010_2 as a number in base nine.

A 54_9

B 58_9

C 60_9

D 64_9

- 2 Dalam suatu ujian, Aida mendapat markah 112_8 dan 1100_4 bagi subjek Sains dan Matematik.

Hitung purata markah yang diperoleh oleh Aida, dalam asas sepuluh.

In a test, Aida obtained 112_8 and 1100_4 marks in Science and Mathematics subjects.

Calculate the mean mark obtained by Aida, in base ten.

A 76

B 77

C 82

D 84

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- 3 Diberi $x^{-2} = 6$, tentukan nilai bagi x^4 .

Given $x^{-2} = 6$, determine the value of x^4 .

A $\frac{1}{6}$

B $\frac{1}{36}$

C 6

D 36

- 4 Diberi empat sebutan pertama bagi suatu jujukan nombor ialah 10, x , -6 , -14 ,

Tentukan nilai x .

Given the first four numbers, in a number sequence is 10, x , -6 , -14 ,

Determine the value of x .

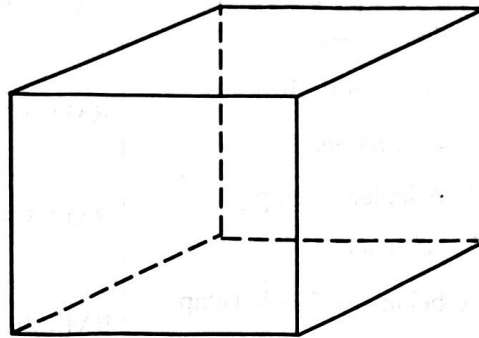
A -8

B -2

C 2

D 8

- 5 Rajah 1 menunjukkan sebuah bekas bertutup yang berbentuk kubus.
Diagram 1 shows a closed cubical container.



Rajah 1
Diagram 1

Lokman mengisi air di dalam tangki ini sehingga penuh.

Isipadu air yang dapat disimpan oleh Lokman di dalam tangki ini ialah 2744 cm^3 .

Hitung jumlah luas permukaan, dalam cm^2 , tangki tersebut.

Lokman filled the tank with water until it was full.

The volume of water that Lokman could store in the tank was 2744 cm^3 .

Calculate the total surface area, in cm^2 , of the water tank.

- A 504
- B 784
- C 980
- D 1176

[Lihat halaman sebelah

SULIT

- 6 Jadual 1 menunjukkan pendapatan dan perbelanjaan bagi Mawar dalam Ogos.

Table 1 shows the income and expenses for Mawar in August.

Pendapatan Aktif <i>Active income</i>	RM5 000
Pendapatan Pasif <i>Passive income</i>	RM1 500
Perbelanjaan Tetap <i>Fixed expenses</i>	RM2 500
Perbelanjaan Tidak Tetap <i>Variable expenses</i>	RM500

Jadual 1

Table 1

Pada bulan September, bayaran ansuran bulanan pinjaman bank sebanyak RM500 telah tamat. Namun perbelanjaan tidak tetap Mawar meningkat sebanyak 20%.

Hitung aliran tunai Mawar bagi bulan September.

In September, her monthly bank installment payment of RM500 has ended.

However, Mawar's variable expenses increased by 20%.

Calculate Mawar's cash flow for September.

- A RM2 900
- B RM3 100
- C RM3 500
- D RM3 900

- 7 Khalish memiliki sebuah pangsapuri di Pulau Pinang. Sewa pangsapuri itu dianggarkan pada RM1 500 sebulan dan dia membayar RM810 setahun untuk cukai pintu. Hitung kadar cukai pintu bagi pangsapuri itu.

Khalish owns an apartment in Pulau Pinang. The rent for the apartment is estimated at RM1 500 per month and he pays RM810 per year for the property assessment tax.

Calculate the property assessment tax rate for the apartment.

- A 4.0%
- B 4.5%
- C 4.8%
- D 5.4%

- 8 Faizul membeli polisi insurans motor pihak ketiga untuk keretanya. Antara situasi berikut, yang manakah dilindungi oleh polisi tersebut?

Faizul bought a third-party motor insurance policy for his car. Which of the following situations is covered by the policy?

- A Kereta Faizul dicuri.
Faizul's car was stolen.
- B Kos baik pulih kereta yang dilanggar oleh Faizul.
The repair cost of the car hit by Faizul.
- C Kos baik pulih kereta Faizul akibat kemalangan.
The repair cost of Faizul's car due to accident.
- D Kos rawatan kecederaan yang dialami oleh Faizul.
The cost of treatment for the injuries suffered by Faizul.

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- 9 Rajah 2 menunjukkan maklumat kenderaan Zaimi yang ingin diinsuranskan di Ipoh. Jadual 2 menunjukkan kadar yang dikenakan bagi RM1 000 yang pertama daripada jumlah yang diinsuranskan bagi polisi komprehensif.
- Diagram 2 shows the information of Zaimi's car that needs to be insured in Ipoh. Table 2 shows the rate charged for the first RM1 000 of the sum insured for comprehensive policy.

Jumlah yang ingin diinsuranskan	
<i>Sum insured</i>	RM90 000
Kapasiti enjin	
<i>Engine capacity</i>	2400 cc
NCD	25%

Rajah 2
Diagram 2

Kapasiti enjin (tidak melebihi cc) <i>Engine capacity (not exceeding cc)</i>	Polisi komprehensif <i>Comprehensive policy</i> (RM)
2 200	339.10
3 050	372.60

Jadual 2
Table 2

Hitung premium kasar bagi kereta Zaimi untuk polisi insuran komprehensif.

[Rumus mengira premium asas polisi komprehensif bagi Semenanjung Malaysia = Kadar bagi RM1 000 yang pertama + RM26 bagi setiap RM1 000 atau sebahagian daripada itu bagi nilai yang melebihi RM1 000 yang pertama.]

Calculate the gross premium of Zaimi's car under the comprehensive policy.

[The formulae to calculate the basic premium of the comprehensive policy for Peninsular Malaysia = Rate for the first RM1 000 + RM26 for each RM1 000 or part thereof on value exceeding the first RM1 000.]

- A RM2686.60
- B RM2653.10
- C RM2014.95
- D RM1989.83

10

Diberi $\frac{x+1}{2} - (1-x) = 3$, hitung nilai x .

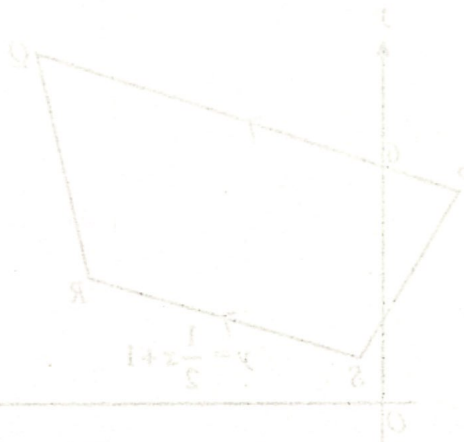
Given that $\frac{x+1}{2} - (1-x) = 3$, calculate the value of x .

A $\frac{7}{3}$

B $\frac{5}{3}$

C $-\frac{5}{3}$

D $-\frac{7}{3}$



11

Ungkapkan $\frac{5k}{4} - \frac{2k^2 - 1}{2k}$ sebagai satu pecahan tunggal dalam bentuk termudah.

Express $\frac{5k}{4} - \frac{2k^2 - 1}{2k}$ as a single fraction in its simplest form.

A $\frac{k^2 - 2}{4k}$

B $\frac{k^2 + 2}{4k}$

C $\frac{k - 4}{4}$

D $\frac{k + 4}{4}$

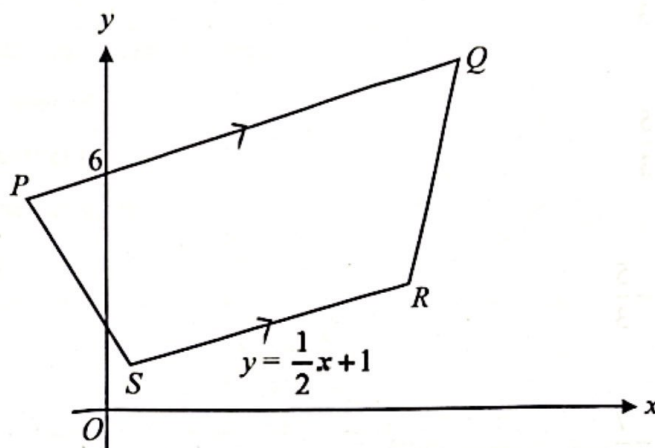
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SULIT

- 12 Rajah 3 menunjukkan sebuah trapezium $PQRS$ yang dilukis pada satah Cartes. PQ adalah selari dengan SR dan O ialah asalan.

Diagram 3 shows a trapezium $PQRS$ drawn on a Cartesian plane.

PQ is parallel to SR and O is the origin.



Rajah 3
Diagram 3

Cari pintasan- x bagi garis lurus PQ .

Find the x -intercept of the straight lines PQ .

A 12

B -12

C 3

D -3

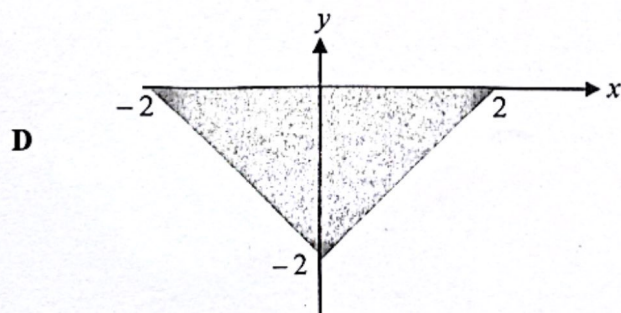
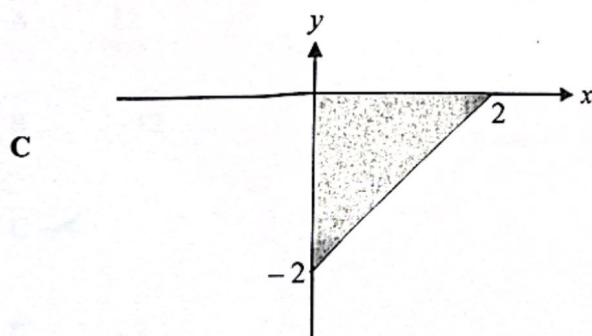
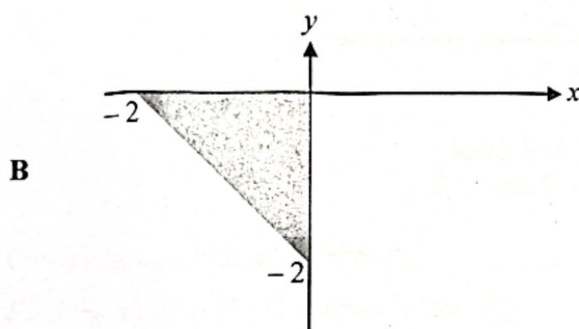
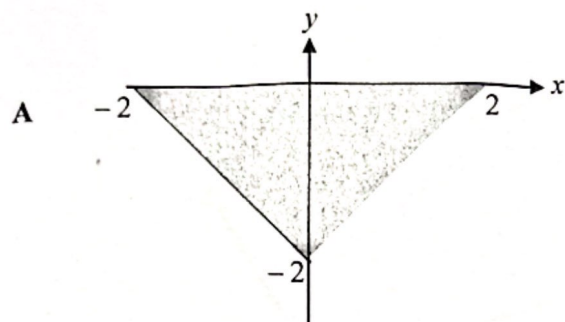
- 13 Tentukan koordinat titik minimum daripada graf fungsi kuadratik $f(x) = x^2 - 4x + 3$.

Determine the coordinates of the minimum point from the graph of the quadratic function $f(x) = x^2 - 4x + 3$.

- A (2, -1)
- B (-2, 15)
- C (1, 0)
- D (3, 0)

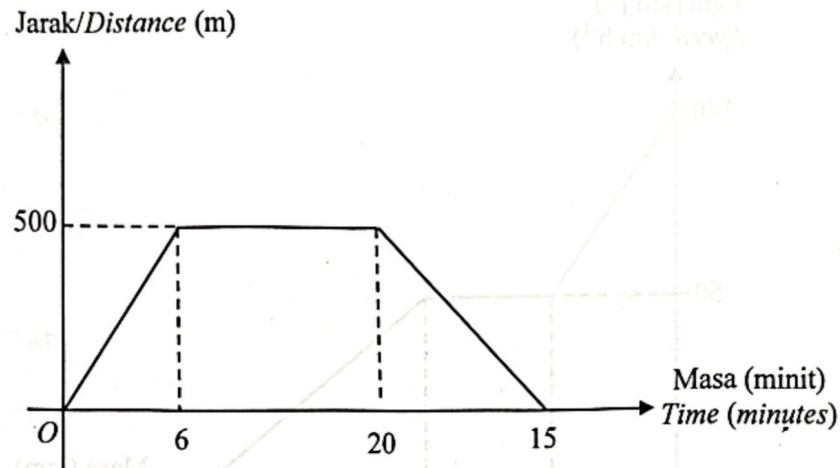
- 14 Antara rantau berlorek berikut, yang manakah memuaskan sistem ketaksamaan linear $x \leq 0, y \leq 0$ dan $x + y \geq -2$?

Which of the following shaded region satisfies the system of linear inequalities $x \leq 0, y \leq 0$ and $x + y \geq -2$?



- 15 Rajah 4 menunjukkan graf jarak-masa bagi perjalanan Azri dari rumahnya ke kedai runcit.

Diagram 4 shows a distance-time graph for Azri's journey from his house to grocery store.



Rajah 4
Diagram 4

Hitung purata laju, dalam m min^{-1} , bagi keseluruhan perjalanan Azri.

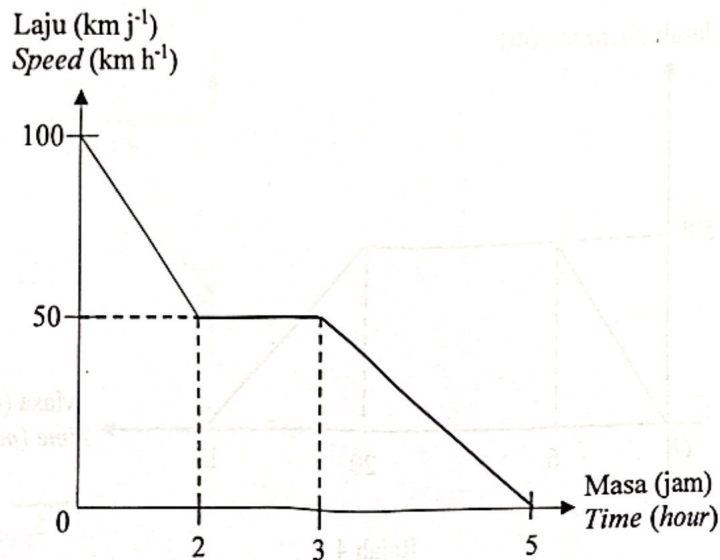
Calculate the average speed, in m min^{-1} , for the whole journey of Azri.

- A 90.91
- B 66.67
- C 55.56
- D 33.33

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- 16 Rajah 5 menunjukkan graf laju-masa perjalanan pulang Hazen dalam latihan berbasikal bagi suatu hari tertentu.

Diagram 5 shows the speed-time graph Hazen's return journey in cycling training for a certain day.



Rajah 5
Diagram 5

Hitung laju purata, dalam km j^{-1} , bagi keseluruhan perjalanan.

Calculate the average speed, in km h^{-1} , for the whole journey.

- A 30
- B 40
- C 50
- D 60

- 17 Diberi bahawa w berubah secara langsung dengan punca kuasa tiga x .

Ungkapkan w dalam sebutan x .

Given that w varies directly as the cube roots of x .

Express w in terms of x .

A $w = k\sqrt{x}$

B $w = kx^2$

C $w = k\sqrt[3]{x}$

D $w = kx^3$

- 18 Diberi bahawa D berubah secara songsang dengan E dan $E = 4F - 3$.

Ungkapkan D dalam sebutan F .

Given that D varies inversely as E and $E = 4F - 3$.

Express D in term of F .

A $D = k(4F - 3)$

B $D = \frac{k}{4F - 3}$

C $D = \frac{k}{E}$

D $D = \frac{1}{k(4F - 3)}$

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- 19 Jadual 3 menunjukkan perubahan tiga kuantiti, R , S dan T .
Diberi R berubah secara songsang dengan punca kuasa dua S dan kuasa tiga T .
*Table 3 shows the change of three quantities, R , S and T .
Given R varies inversely with the square root of S and cube of T .*

R	5	x	6
S	9	36	y
T	2	1	1

Jadual 3
Table 3

Hitung nilai x dan nilai y .

Calculate the value of x and value of y .

A $x = 15, y = 15$

B $x = 15, y = 225$

C $x = 20, y = 20$

D $x = 20, y = 400$

20 Diberi

Given

$$\begin{pmatrix} x & 6 \\ 1 & -2 \end{pmatrix} + \begin{pmatrix} -6 & 7 \\ 3 & y-1 \end{pmatrix} = \begin{pmatrix} 3 & 13 \\ 4 & 4 \end{pmatrix}$$

Cari x dan y .Find x and y .

A $x = 3, y = 3$

B $x = 3, y = 7$

C $x = 9, y = 3$

D $x = 9, y = 7$

21

Diberi bahawa matriks $A = \begin{pmatrix} 3 & 5 \\ x & 2+y \end{pmatrix}$ dan matriks $B = \begin{pmatrix} 3 & 5 \\ 9 & -2 \end{pmatrix}$.Tentukan nilai x dan nilai y jika $A = B$.Given that matrix $A = \begin{pmatrix} 3 & 5 \\ x & 2+y \end{pmatrix}$ and matrix $B = \begin{pmatrix} 3 & 5 \\ 9 & -2 \end{pmatrix}$.Determine the values of x and of y if $A = B$.

A $x = -5, y = 7$

B $x = -2, y = 7$

C $x = 3, y = 5$

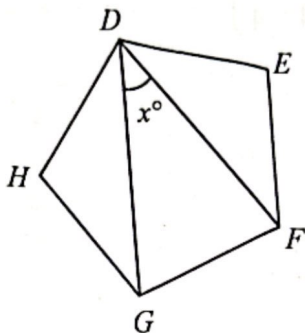
D $x = 9, y = -4$

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- 22 Rajah 6 ialah pentagon sekata $DEFGH$.

Diagram 6 shows a regular pentagon $DEFGH$.



Rajah 6
Diagram 6

Hitung nilai x .

Calculate the value of x .

A 32

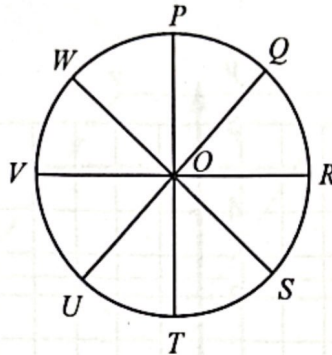
B 36

C 72

D 108

- 23 Rajah 7 menunjukkan sebuah bulatan berpusat O . Bulatan ini dibahagikan kepada lapan sektor yang sama saiz.

Diagram 7 shows a circle with centre O . The circle is divided into eight equal sectors.



Rajah 7
Diagram 7

X ialah lokus bagi satu titik yang bergerak dengan keadaan sentiasa sama jarak dari titik S dan titik W .

Antara berikut yang manakah mewakili lokus X ?

X is the locus of a point that moves at a constant distance from points S and W .

Which of the following represent the locus of X ?

A Garis PT
 Line PT

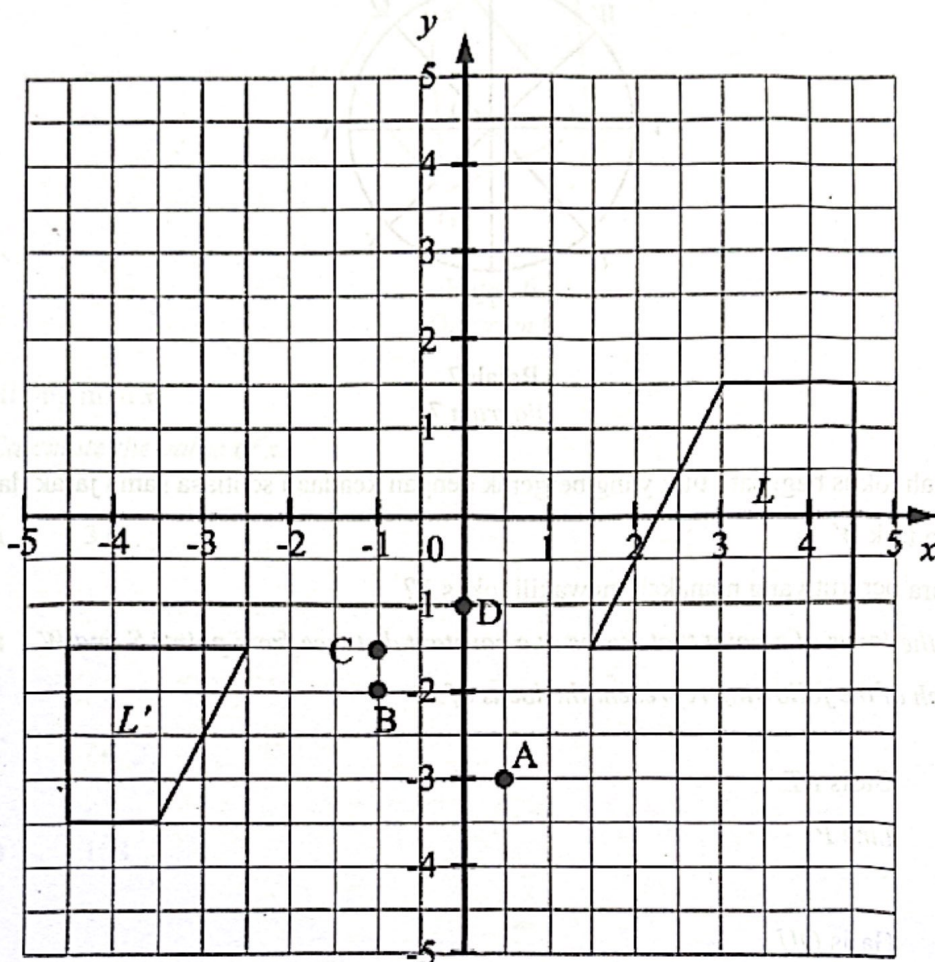
B Garis QU
 Line QU

C Garis VR
 Line VR

D Garis WS
 Line WS

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- 24 Rajah 8 menunjukkan dua buah trapezium yang dilukis pada suatu satah Cartes. Trapezium L' ialah imej bagi trapezium L di bawah suatu pembesaran. Diagram 8 shows two trapeziums drawn on a Cartesian plane. Trapezium L' is the image of the trapezium L under an enlargement transformation.

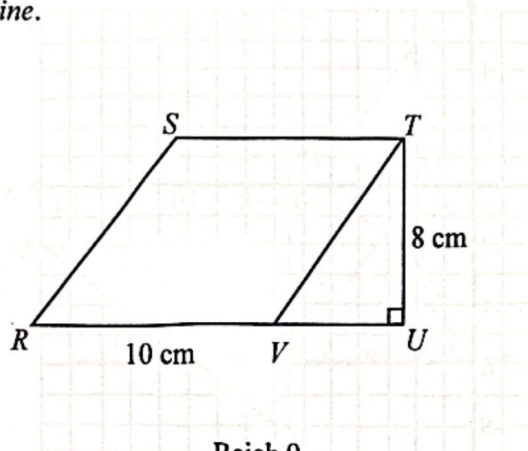


Rajah 8
Diagram 8

Antara titik A, B, C dan D, yang manakah pusat pembesaran ini ?

Which of the points, A, B, C and D, is the centre of the enlargement ?

- 25 Rajah 9 menunjukkan sebuah rombus $RSTV$ dan segi tiga bersudut tegak TUV .
 RVU ialah garis lurus.
 Diagram 9 shows a rhombus $RSTV$ and a right-angled triangle TUV .
 RVU is a straight line.



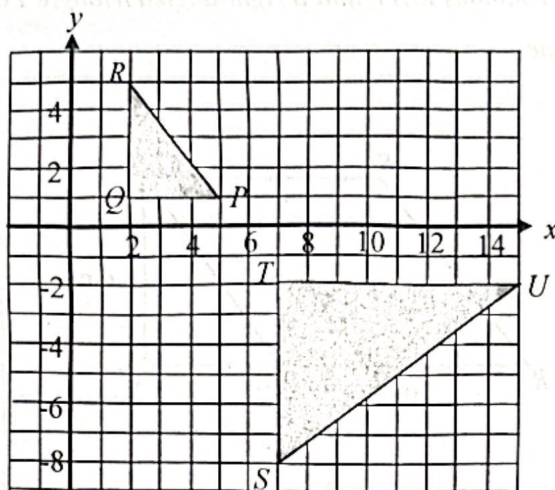
Rajah 9
 Diagram 9

Hitung luas seluruh rajah, dalam cm^2 .
 Calculate the area of the whole diagram, in cm^2 .

A	104
B	124
C	128
D	148

[Lihat halaman sebelah

- 26 Dalam Rajah 10, PQR ialah imej bagi STU di bawah gabungan transformasi MN .
 In Diagram 10, PQR is the image of STU under the combined transformation MN .



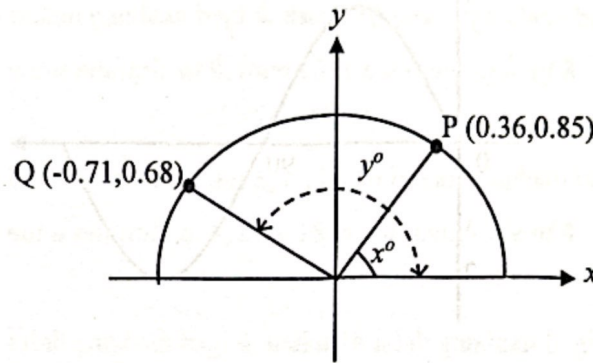
Rajah 10
 Diagram 10

Antara berikut, yang manakah betul?

Which of the following is correct?

	N	M
A	Putaran 90° ikut arah jam pada pusat $(3, -3)$ <i>Rotation 90° clockwise at centre $(3, -3)$</i>	Pembesaran pada pusat $(5, -2)$ dengan faktor skala 2 <i>Enlargement at centre $(5, -2)$ with scale factor 2</i>
B	Putaran 90° ikut arah jam pada pusat $(3, -3)$ <i>Rotation 90° clockwise at centre $(3, -3)$</i>	Pembesaran pada pusat $(2, 1)$ dengan faktor skala $\frac{1}{2}$ <i>Enlargement at centre $(2, 1)$ with scale factor $\frac{1}{2}$</i>
C	Putaran 90° lawan arah jam pada pusat $(3, -3)$ <i>Rotation 90° anticlockwise at centre $(3, -3)$</i>	Pembesaran pada pusat $(5, -2)$ dengan faktor skala 2 <i>Enlargement at centre $(5, -2)$ with scale factor 2</i>
D	Putaran 90° lawan arah jam pada pusat $(3, -3)$ <i>Rotation 90° anticlockwise at centre $(3, -3)$</i>	Pembesaran pada pusat $(2, 1)$ dengan faktor skala $\frac{1}{2}$ <i>Enlargement at centre $(2, 1)$ with scale factor $\frac{1}{2}$</i>

- 27 Rajah 11 menunjukkan satu bulatan unit berpusat O .
Titik P dan titik Q terletak pada lengkok bulatan itu.
Diagram 10 shows a unit circle with centre O .
Point P and point Q lie on the arc of the circle.



Rajah 11
Diagram 11

Cari nilai $\tan x + \sin y$.

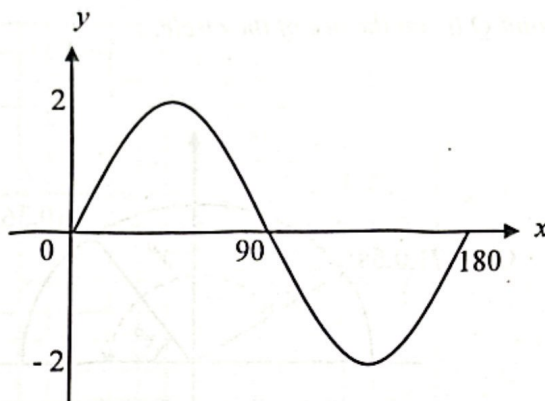
Find the value of $\tan x + \sin y$.

- A 3.04
B 1.72
C 1.53
D 1.40

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- 28 Rajah 12 menunjukkan graf yang mewakili suatu fungsi trigonometri

Diagram 12 shows a graph that represents a trigonometric function.



Rajah 12
Diagram 12

Antara berikut, yang manakah fungsi trigonometri yang mewakili graf itu?

Which of the following trigonometric function that represent the graph?

A $y = \sin x$

B $y = \sin 2x$

C $y = 2 \sin x$

D $y = 2 \sin 2x$

- 29 Antara berikut, yang manakah merupakan akas bagi implikasi

"Jika 16 ialah gandaan bagi 8, maka 16 ialah gandaan bagi 4"

Which of the following is a converse for implication

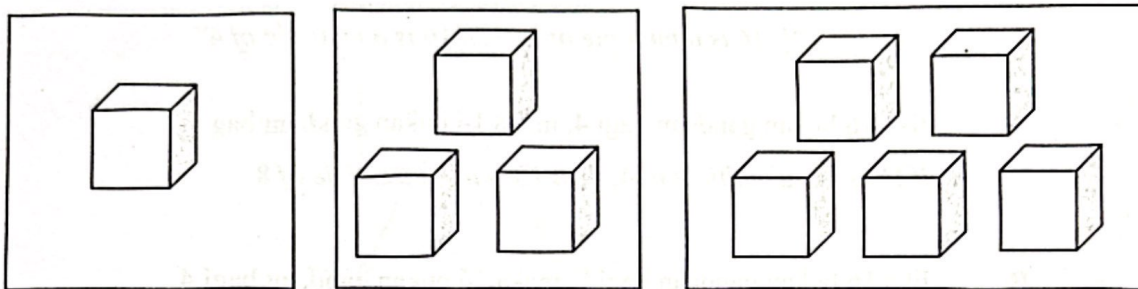
"If 16 is a multiple of 8, then 16 is a multiple of 4"

- A Jika 16 bukan gandaan bagi 4, maka 16 bukan gandaan bagi 8
If 16 is not a multiple of 4, then 16 is not a multiple of 8
- B Jika 16 bukan gandaan bagi 8, maka 16 bukan gandaan bagi 4
If 16 is not a multiple of 8, then 16 is not a multiple of 4
- C Jika 16 ialah gandaan bagi 4, maka 16 ialah gandaan bagi 8
If 16 is a multiple of 4, then 16 is a multiple of 8
- D Jika 8 ialah gandaan bagi 16, maka 4 ialah gandaan bagi 16
If 8 is a multiple of 16, then 4 is a multiple of 16

[Lihat halaman sebelah

- 30 Rajah 13 menunjukkan tiga susunan pertama kubus yang sama saiz.

Diagram 13 shows the first three arrangements of cubes of the same size.



Rajah 13
Diagram 13

Diberi bahawa panjang sisi setiap kubus ialah 4 cm.

Tentukan susunan ke berapa yang mempunyai jumlah isipadu sebanyak 704 cm^3 .

It is given that the length of each cube is 4 cm.

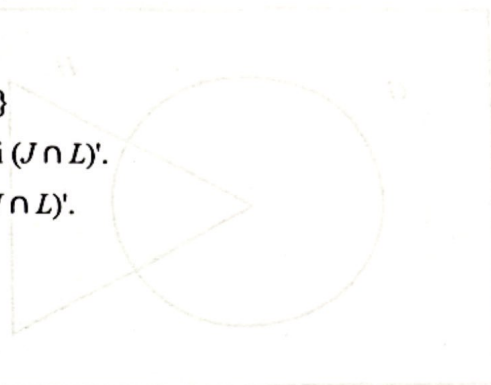
Determine the number of arrangements that have a total volume of 704 cm^3 .

- A 3
- B 6
- C 9
- D 11

31 Diberi;

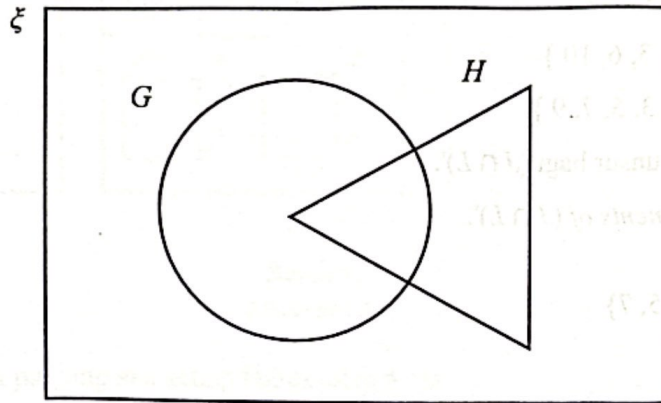
Set semesta, $\xi = J \cup K \cup L$,

Given:

Universal set, $\xi = J \cup K \cup L$,Set $J = \{2, 3, 5, 7\}$ Set $K = \{2, 3, 6, 10\}$ Set $L = \{1, 3, 5, 7, 9\}$ Senaraikan unsur bagi $(J \cap L)'$.List the elements of $(J \cap L)'$.A $\{3, 5, 7\}$ B $\{2, 3, 6, 10\}$ C $\{2, 6, 9, 10\}$ D $\{1, 2, 6, 9, 10\}$ 

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- 32 Rajah 14 ialah gambar rajah Venn yang menunjukkan set semesta, $\xi = \{\text{murid Tingkatan 5}\}$, set $G = \{\text{murid yang bermain gitar}\}$, set $H = \{\text{murid yang bermain piano}\}$.
Diagram 14 is a Venn diagram showing the universal set, $\xi = \{\text{Form 5 students}\}$, set $G = \{\text{students who play guitar}\}$, set $H = \{\text{students who play piano}\}$.



Rajah 14
Diagram 14

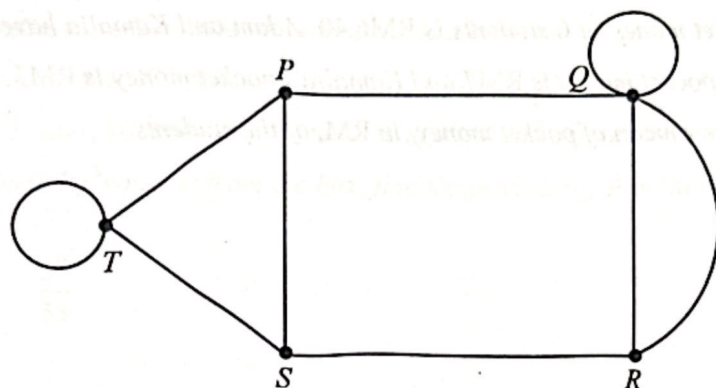
Diberi $n(\xi) = 38$, $n(G) = 18$, $n(H) = 10$ dan $n(G \cap H) = 5$, cari bilangan murid yang tidak bermain kedua-dua alat muzik itu.

Given $n(\xi) = 38$, $n(G) = 18$, $n(H) = 10$ and $n(G \cap H) = 5$, find the number of students who do not play both musical instruments.

- A 19
B 17
C 15
D 13

- 33 Rajah 15 menunjukkan sebuah graf tak terarah.

Diagram 15 shows an undirected graph.



Rajah 15
Diagram 15

Antara berikut yang manakah mewakili set tepi dan jumlah darjah yang betul?

Which of the following represents the correct set of edges and the sum of degrees?

	Set tepi List of vertices	Jumlah darjah Sum of degrees
A	$\{(P, Q), (P, S), (P, T), (Q, R), (Q, R), (Q, Q), (R, S), (S, T), (T, T)\}$	18
B	$\{(P, Q), (P, S), (P, T), (Q, R), (Q, Q), (R, S), (S, T), (T, T), (T, T)\}$	18
C	$\{(P, Q), (P, S), (P, T), (Q, R), (Q, R), (R, S), (S, T), (T, T)\}$	16
D	$\{(P, Q), (P, S), (Q, R), (Q, R), (Q, Q), (R, S), (S, T), (T, T)\}$	16

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SULIT

- 34 Min wang saku bagi 6 orang murid ialah RM6.40. Adam dan Kamalia telah menyertai kumpulan ini. Wang saku Adam ialah RM7 dan wang saku Kamalia ialah RM5. Hitung min wang saku baharu, dalam RM, murid tersebut.

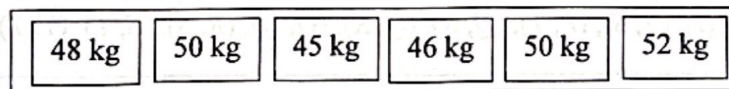
The mean pocket money of 6 students is RM6.40. Adam and Kamalia have joined this group. Adam's pocket money is RM7 and Kamalia's pocket money is RM5.

Calculate the new mean of pocket money, in RM, of the students.

- A 4.36
B 6.13
C 6.30
D 8.40

- 35 Rajah 16 ialah suatu set data yang menunjukkan jisim bagi enam orang murid.

Diagram 16 is a set of data showing the masses of six students.



Rajah 16
Diagram 16

Tentukan median.

Determine the median.

- A 45 kg
B 49 kg
C 50 kg
D 52 kg

36. Sebuah kotak mengandungi 120 biji buah yang terdiri daripada 40 biji limau, 48 biji epal dan selebihnya ialah buah mangga. Selepas 3 hari, 10 biji limau didapati rosak dan dikeluarkan daripada kotak. Jika sebiji buah dipilih secara rawak daripada kotak itu, cari kebarangkalian bahawa buah itu bukan buah mangga.

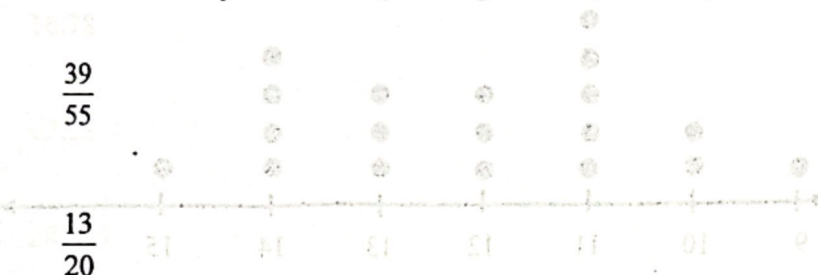
A box contains 120 fruits consisting of 40 limes, 48 apples and the rest are mangoes. After 3 days, 10 limes are found to be spoiled and are removed from the box. If a fruit is selected at random from the box, find the probability that the fruit is not a mango.

A $\frac{39}{55}$

B $\frac{13}{20}$

C $\frac{11}{15}$

D $\frac{4}{5}$



A 10

B 11

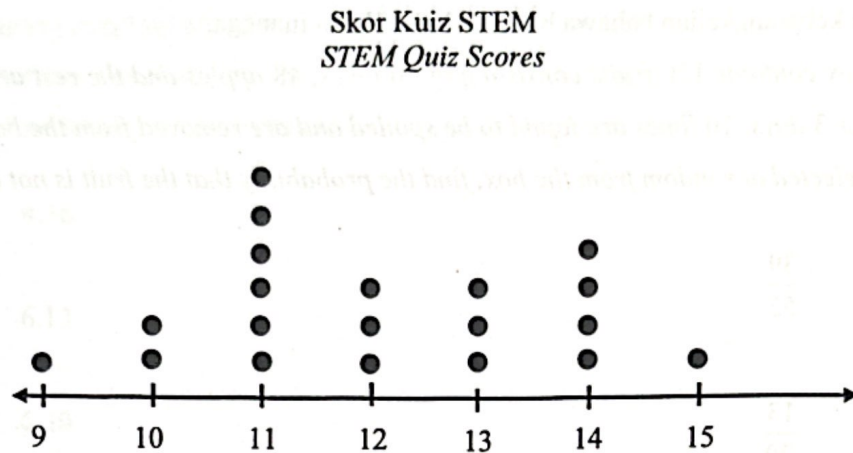
C 12

D 13

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37 Rajah 17 menunjukkan plot titik bagi skor kuiz STEM sekumpulan 20 orang murid.

Diagram 17 shows a dot plot of STEM quiz scores of a group of 20 students.



Rajah 17
Diagram 17

Tentukan mod bagi data itu.

Determine the mode of the data.

A 10

B 11

C 12

D 13

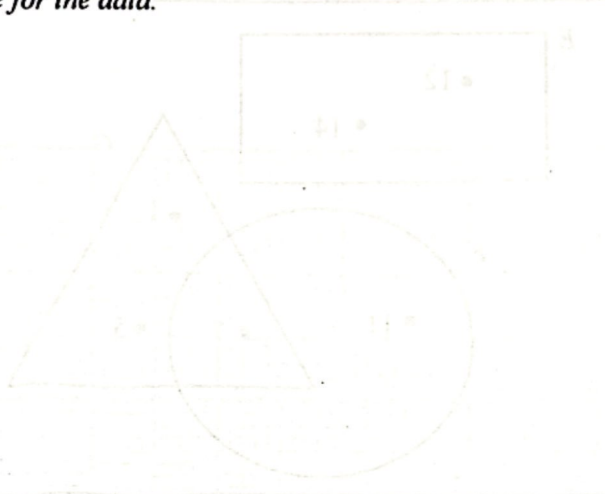
- 38 Markah Matematik bagi lapan orang murid Kelas 3 Bestari telah dicatatkan sebagai 45, 59, 35, 80, 72, 54, 65 dan 89.

Tentukan varians bagi data tersebut.

The Mathematics scores of eight students of 3 Bestari Class students were recorded as 45, 59, 35, 80, 72, 54, 65 and 89.

Determine the variance for the data.

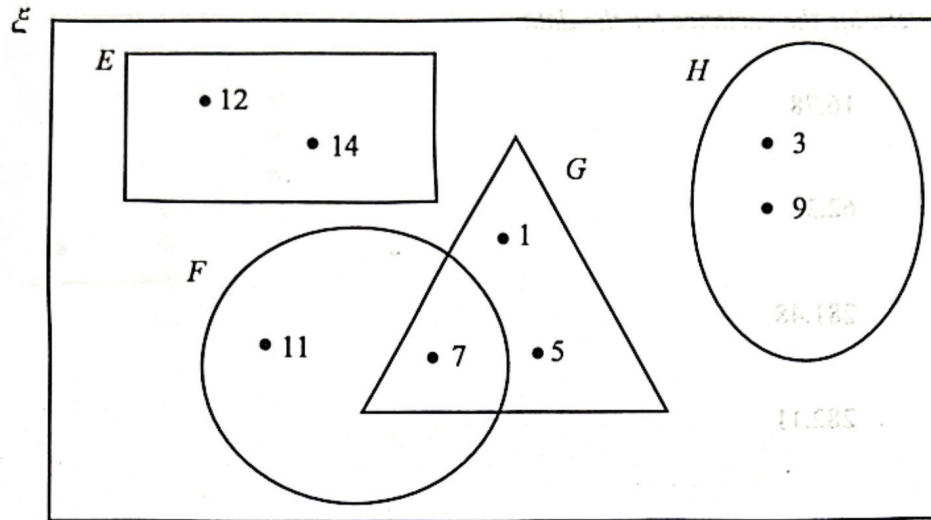
- A 16.78
B 62.38
C 281.48
D 282.11



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- 39 Rajah 18 ialah gambar rajah Venn yang menunjukkan hubungan antara set E , F , G dan H . Diberi set semesta, $\xi = E \cup F \cup G \cup H$.

Diagram 18 is a Venn diagram that shows the relationship between set E , F , G and H . It is given the universal set, $\xi = E \cup F \cup G \cup H$.



Rajah 18
Diagram 18

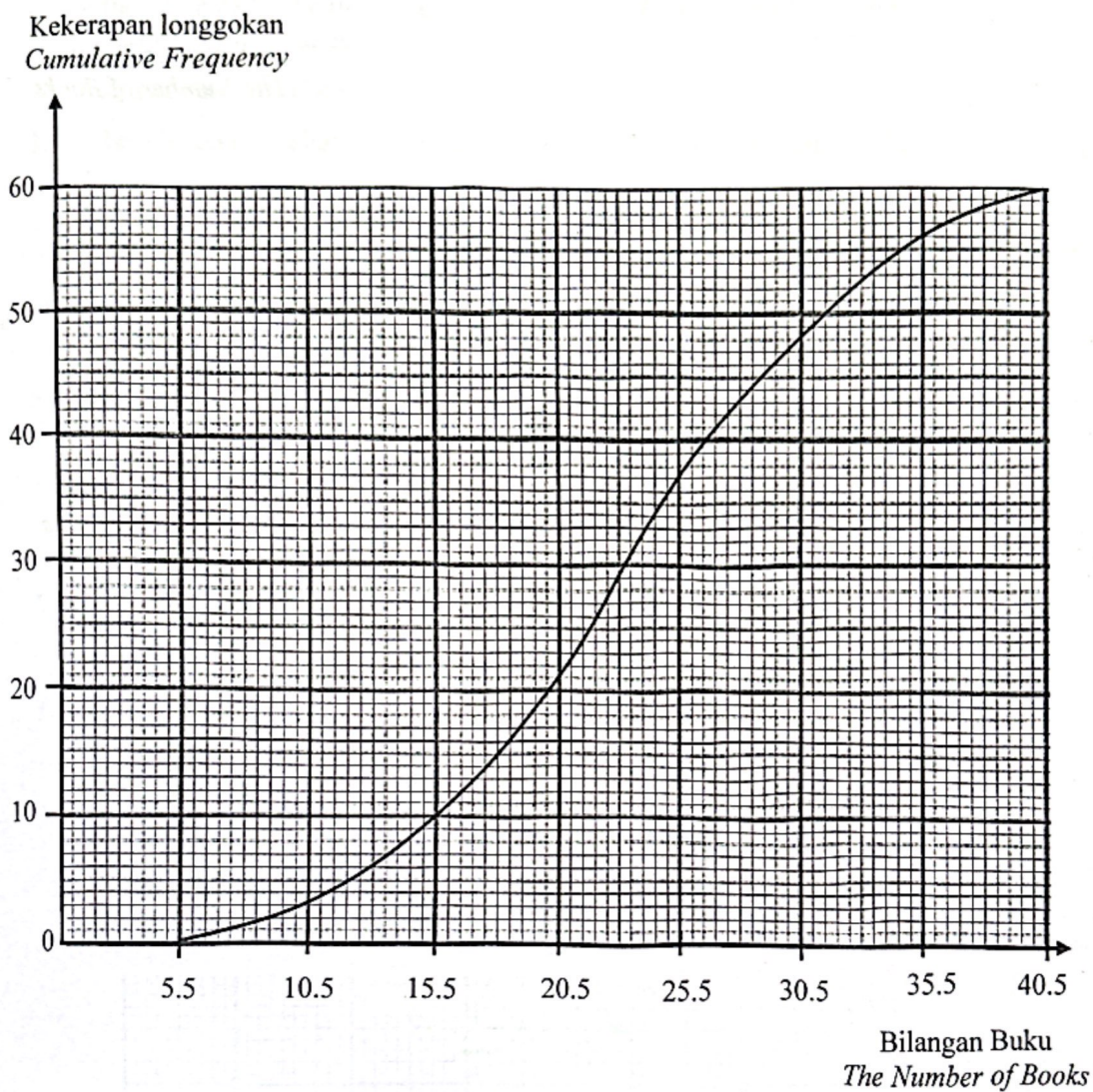
Antara berikut, yang manakah ialah peristiwa tidak saling eksklusif?

Which of the following is a non-mutually exclusive event?

- A E dan F
 E and F
- B E dan H
 E and H
- C F dan G
 F and G
- D G dan H
 G and H

- 40 Rajah 19 menunjukkan ogif bagi bilangan buku yang dibaca oleh 60 orang murid dalam bulan Jun.

Diagram 19 shows an ogive of books read by 60 of students in June.

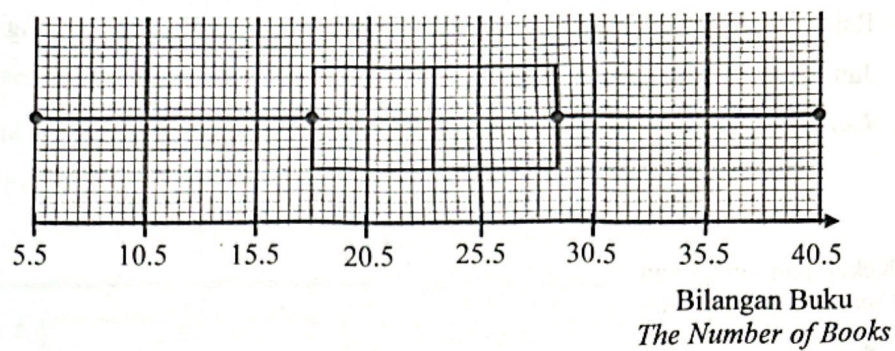


Rajah 19
Diagram 19

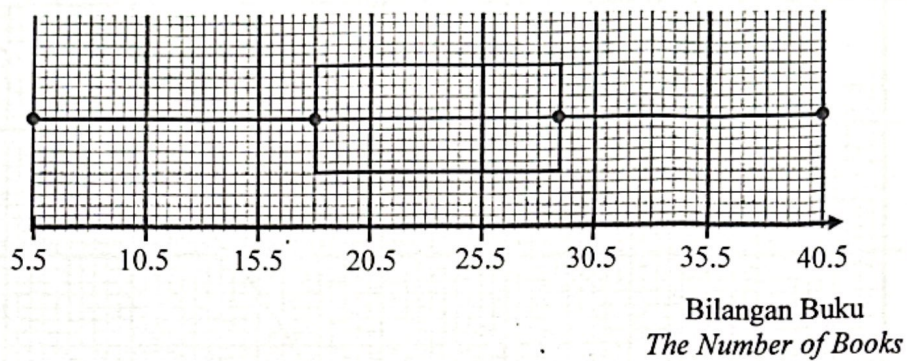
Antara plot kotak berikut, yang manakah mewakili ogif tersebut?

Which of the following box plots represents the ogive?

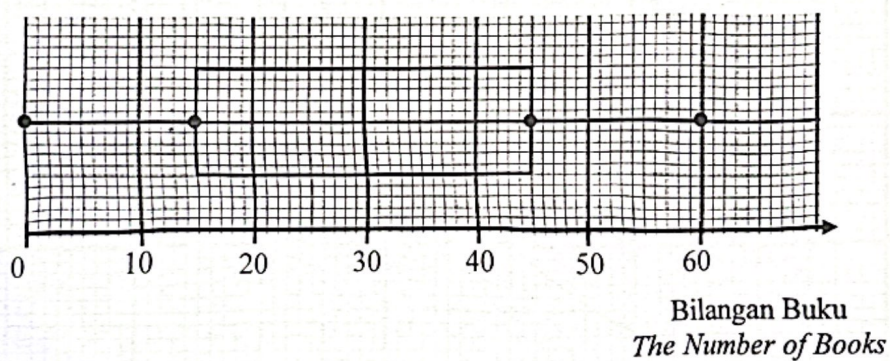
A



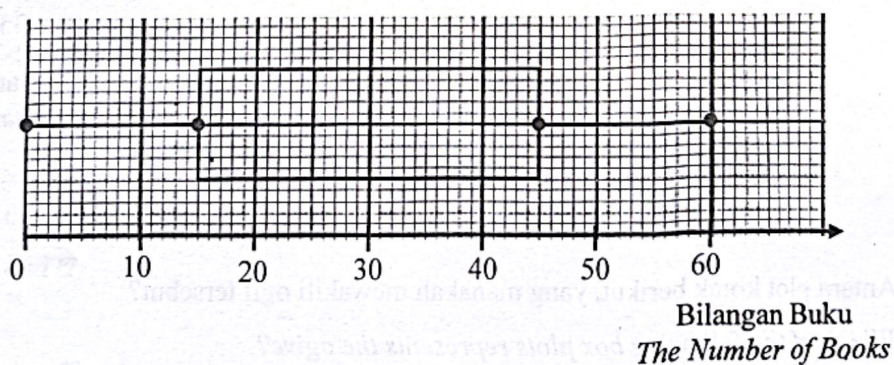
B



C



D



KERTAS PEPERIKSAAN TAMAT
END OF QUESTION PAPER