

MAJLIS PENGETUA SEKOLAH MALAYSIA

KUALA LUMPUR

PEPERIKSAAN PERCUBAAN SPM 2026

MATEMATIK 1449/1

TINGKATAN 5

Kertas 1

1 jam 30 minit



JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1.

*Kertas peperiksaan ini mengandungi **40** soalan.*
2.

*Jawapan **semua** soalan.*
3.

*Bagi setiap soalan, pilih **satu** jawapan sahaja. **Hitamkan** jawapan anda pada kertas objektif.*
4.

*Kertas peperiksaan ini adalah dalam dwibahasa.*
5.

*Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*

Kertas peperiksaan ini mengandungi **28** halaman bercetak.

NOMBOR DAN OPERASI  
NUMBER 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

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

$Premium = \frac{\text{Face value of policy}}{\text{RM}x} \times (\text{Premium rate per RM}x)$
- 11

Jumlah insurans yang harus dibeli =  $\left(\frac{\text{Peratusan}}{\text{ko-insurans}}\right) \times \left(\frac{\text{Nilai boleh}}{\text{insurans harta}}\right)$

$Amount\ of\ required\ insurance = \left(\frac{Percentage\ of}{co-insurance}\right) \times \left(\frac{Insurable\ value}{of\ property}\right)$

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 =  $\frac{\text{Jumlah jarak}}{\text{Jumlah masa}}$

$Average\ speed = \frac{Total\ distance}{Total\ time}$
- 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

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

- 1
- Teorem Pythagoras / *Pythagoras Theorem*,  $c^2 = a^2 + b^2$
- 2
- Hasil tambah sudut pedalaman polygon / *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  $= \pi r^2$   
*Area of circle*  $= \pi r^2$
- 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*  $= \frac{1}{2} \times \text{product of two diagonals}$
- 8
- Luas trapezium  $= \frac{1}{2} \times$  hasil tambah dua sisi selari  $\times$  tinggi  
*Area of trapezium*  $= \frac{1}{2} \times \text{sum of two parallel sides} \times \text{height}$
- 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*  $= \text{area of cross section} \times \text{height}$
- 13
- Isi padu silinder  $= \pi r^2 h$   
*Volume of cylinder*  $= \pi r^2 h$

- 14
- Isi padu kon =  $\frac{1}{3}\pi j^2t$  / *Volume of cone* =  $\frac{1}{3}\pi r^2h$
- 15
- Isi padu sfera =  $\frac{4}{3}\pi j^3$  / *Volume of sphere* =  $\frac{4}{3}\pi r^3$
- 
- Isi padu piramid =  $\frac{1}{3} \times$  luas tapak  $\times$  tinggi
- 16
- Volume of pyramid* =  $\frac{1}{3} \times$  base area  $\times$  height
- 
- 17
- Faktor skala/*Scale factor*,  $k = \frac{PA'}{PA}$
- 
- 18
- Luas imej =  $k^2 \times$  luas objek
- Area of image* =  $k^2 \times$  area of object

STATISTIK DAN KEBARANGKALIAN  
STATISTICS AND PROBABILITY

- 1
- Min / *Mean*,  $\bar{x} = \frac{\sum x}{N}$
- 2
- Min / *Mean*,  $\bar{x} = \frac{\sum fx}{\sum f}$
- 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
- $P(A') = 1 - P(A)$

*Jawab semua soalan.*

- 1** Diberi  $8^{2k-3} \times 8^4 = 8^3$ , cari nilai  $k$ .  
[R] *Given  $8^{2k-3} \times 8^4 = 8^3$ , find the value of  $k$ .*
- A**  $\frac{15}{8}$
- B**  $\frac{15}{2}$
- C** 1
- D** 2
- 
- 2** Ungkapkan  $3 \times 7^4 + 2 \times 7^2 + 6$  kepada nombor dalam asas tujuh.  
[R] *Express  $3 \times 7^4 + 2 \times 7^2 + 6$  to a number in base seven.*
- A**  $326_7$
- B**  $3026_7$
- C**  $3206_7$
- D**  $30206_7$
- 
- 3** Antara berikut, yang manakah **bukan** insurans am?  
[R] *Which of the following is **not** general insurance?*
- A** Insurans motor  
*Motor insurance*
- B** Insurans kemalangan diri  
*Personal-accident insurance*
- C** Insurans perubatan dan kesihatan  
*Medical and health insurance*
- D** Insurans hayat  
*Life insurance*

- 4

1431<sub>9</sub> – 582<sub>9</sub> =
- [S]
- A

717<sub>9</sub>
- B

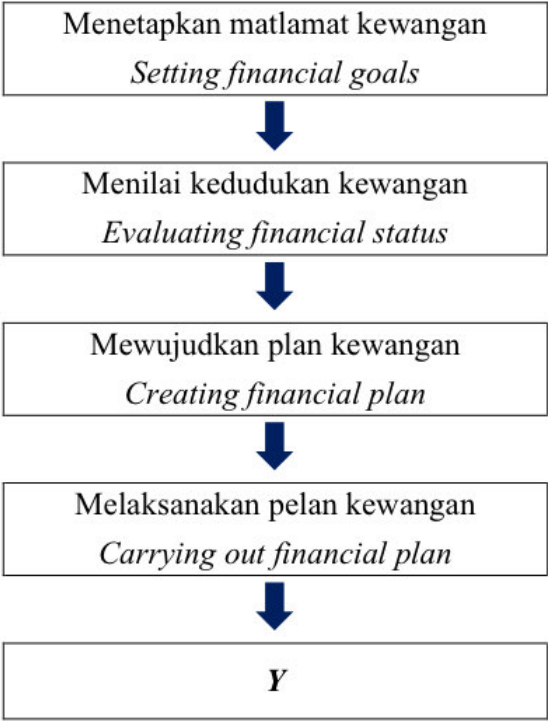
738<sub>9</sub>
- C

847<sub>9</sub>
- D

878<sub>9</sub>

- 5

Rajah 1 menunjukkan proses pengurusan kewangan.
- [R]
- Diagram 1 shows the financial management process.



Rajah 1  
Diagram 1

Namakan proses *Y*.  
Name the process of *Y*.

- A

Menamatkan pelan kewangan  
Terminating the financial plan
- B

Melengkapkan pelan kewangan  
Completing financial plan
- C

Mengkaji semula dan menyemak kemajuan  
Reviewing and revising the progress.
- D

Menyediakan pelan kewangan yang baharu  
Preparing a new plan

- 6 Rajah 2 menunjukkan empat sebutan pertama bagi suatu jujukan nombor.

[S] *Diagram 2 shows the first four terms of a number sequence.*

|                      |
|----------------------|
| $-2, 1, 4, 7, \dots$ |
|----------------------|

Rajah 2

Diagram 2

Nyatakan pola bagi jujukan itu menggunakan ungkapan algebra.

*State the pattern of the sequence using an algebraic expression.*

A  $-2 + 3n, n = 1, 2, 3, 4, \dots$

B  $-2n + 3, n = 1, 2, 3, 4, \dots$

C  $3n - 5, n = 1, 2, 3, 4, \dots$

D  $3n + 5, n = 1, 2, 3, 4, \dots$

- 7 40 logam berbentuk kubus dileburkan untuk membentuk 20 logam sfera yang serupa. Diberi bahawa panjang sisi sebuah kubus itu ialah 80 cm.

[T]

Cari isipadu, dalam  $\text{cm}^3$ , untuk satu logam sfera.

*40 metal cubes are melted to form 20 identical metal spheres. It is given that the length of a cube is 80 cm.*

*Find the volume, in  $\text{cm}^3$ , of one metal sphere.*

A  $1.024 \times 10^{-6}$

B  $1.6 \times 10^{-2}$

C  $1.6 \times 10^2$

D  $1.024 \times 10^6$

- 8 Tentukan bilangan segi tiga sama sisi yang diperlukan untuk membentuk satu heksagon sekata.

[R] *Determine the number of equilateral triangle that is needed to form a regular hexagon.*

A 3

B 4

C 5

D 6

- 9** [S] Ungkapkan  $\frac{2}{m-3n} - \frac{m+3n}{m^2-9n^2}$  sebagai pecahan tunggal dalam bentuk termudah.

*Express  $\frac{2}{m-3n} - \frac{m+3n}{m^2-9n^2}$  as a single fraction in its simplest form.*

**A**  $\frac{1}{m-3n}$

**B**  $\frac{1}{m+3n}$

**C**  $\frac{m+15n}{m^2+9n^2}$

**D**  $\frac{m-15n}{m^2-9n^2}$

- 10** Kembangkan :

[R] *Expand :*

$$-5y(x-y)$$

**A**  $-5xy - y^2$

**B**  $-5xy + y^2$

**C**  $-5xy - 5y^2$

**D**  $-5xy + 5y^2$

- 11** Diberi bahawa  $rs - s^2 = r - 5$ .

[S] Ungkapkan r dalam sebutan s.

*It is given that  $rs - s^2 = r - 5$ .*

*Express r in terms of s.*

**A**  $r = s - 5$

**B**  $r = s + 5$

**C**  $r = \frac{s^2 - 5}{s - 1}$

**D**  $r = \frac{s^2 - 5}{s + 1}$

- 12** [T] RM 640 dikongsi antara Yusuf, Yumna dan Haris dalam nisbah 8 :  $m$  : 3. Jika bahagian Yusuf adalah RM 400. Hitung wang yang diterima oleh Yumna.

*RM 640 is shared between Yusuf, Yumna and Haris in the ratio 8 :  $m$  : 3. If Yusuf's share is RM 400. Calculate the money received by Yumna.*

- A** 90
- B** 150
- C** 240
- D** 400

- 13** [R] Hitung isi padu sebuah sfera dengan jejari 3 cm dalam sebutan  $\pi$ .

*Calculate the volume of a sphere with a radius of 3 cm in terms of  $\pi$ .*

- A**  $9\pi$
- B**  $12\pi$
- C**  $27\pi$
- D**  $36\pi$

- 14** [T] Rahman membeli sebuah kereta berharga RM 33 700 secara kredit. Dia membayar wang pendahuluan sebanyak 20% dan bakinya dibayar secara ansuran selama 5 tahun. Kadar faedah tetap yang dikenakan oleh bank ialah 4.3% setahun. Kira bayaran bulanan yang perlu dibayar.

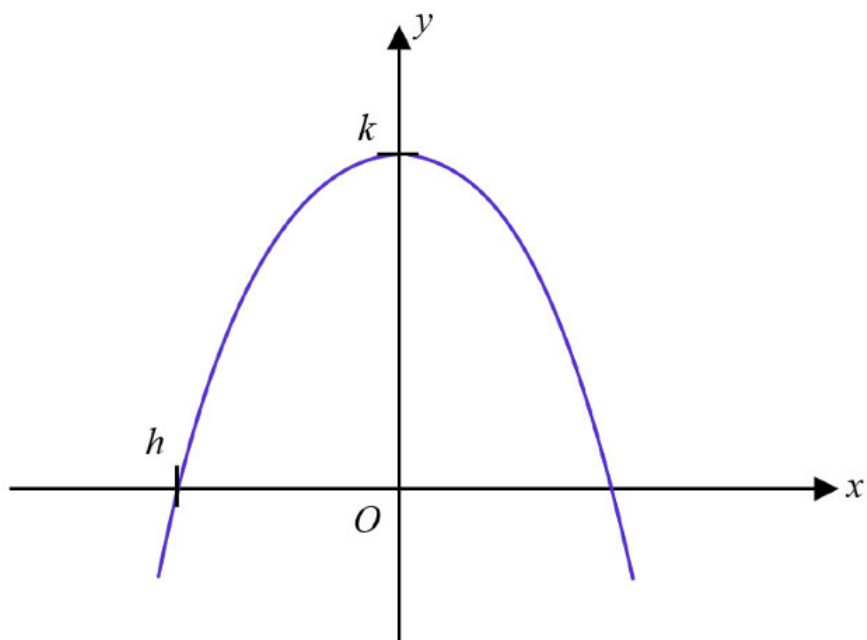
*Rahman bought a car for RM 33 700 on credit. He paid 20% of the down payment and the balance is payable by installments over 5 years. The flat interest rate imposed by the bank is 4.3% per annum. Calculate the monthly payment paid.*

- A** RM 468.65
- B** RM 545.94
- C** RM 585.82
- D** RM 658.27



- 15** [R] Rajah 3 menunjukkan sebuah graf  $y = -x^2 + 25$  yang dilukis pada suatu satah Cartes dengan keadaan  $h$  dan  $k$  adalah pemalar.

*Diagram 3 shows a graph of  $y = -x^2 + 25$  drawn on a Cartesian plane such that  $h$  and  $k$  are constants.*



Rajah 3  
Diagram 3

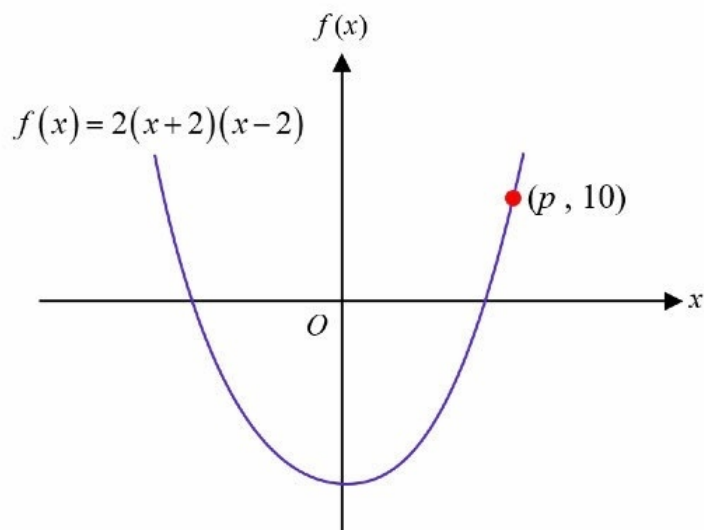
Tentukan nilai  $h$  dan nilai  $k$ .

*Determine the value of  $h$  and of  $k$ .*

- A**  $h = -5, k = -25$
- B**  $h = -5, k = 25$
- C**  $h = 5, k = 25$
- D**  $h = 5, k = -25$

- 16** [T] Rajah 4 menunjukkan graf fungsi bagi  $f(x) = 2(x+2)(x-2)$  dan titik  $(p, 10)$  berada pada graf fungsi  $f(x)$ .

*Diagram 4 shows a graph of function  $f(x) = 2(x+2)(x-2)$  and point lies on the graph of function  $f(x)$ .*



Rajah 4  
Diagram 4

Cari nilai  $p$ .

*Find the value of  $p$ .*

- A** 1
- B** 3
- C** 4
- D** 9

- 17** Titik  $P$  berada dalam rantau yang memuaskan sistem ketaksamaan linear  $x > 0$ ,  $y > 0$  dan  
[R]  $y > 12 - 2x$ .

Antara berikut yang manakah titik  $P$ ?

*Point  $P$  lies within the region that satisfies the systems of linear inequalities  $x > 0$ ,  $y > 0$  and  $y > 12 - 2x$ .*

*Which of the following is point  $P$ ?*

- A** (2, 4)
- B** (3, 4)
- C** (4, 4)
- D** (5, 4)

- 18** Zara memperuntukkan RM 146 bagi membeli beberapa buah buku latihan,  $x$ , dan set alat tulis,  $y$ , dari sebuah kedai buku. Diberi bahawa harga satu buku latihan dan satu set alat tulis masing-masing ialah RM18 dan RM23.

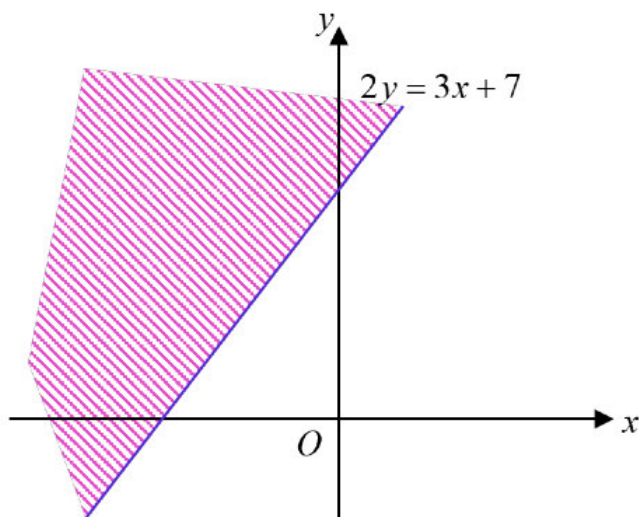
Antara ketaksamaan berikut, yang manakah mewakili situasi tersebut?

*Zara allocates RM146 to buy a few exercise books,  $x$ , and a few stationery sets,  $y$ , from a book shop. It is given that the price of a book and a stationery set are RM18 and RM23 respectively.*

*Which of the following inequalities represents the situation?*

- A**  $18x + 23y < 146$
- B**  $18x + 23y > 146$
- C**  $18x + 23y \leq 146$
- D**  $18x + 23y \geq 146$

- 19** Rantau berlorek dalam Rajah 5 memuaskan suatu ketaksamaan linear.  
[S] *The shaded region in Diagram 5 satisfies a linear inequality.*



Rajah 5

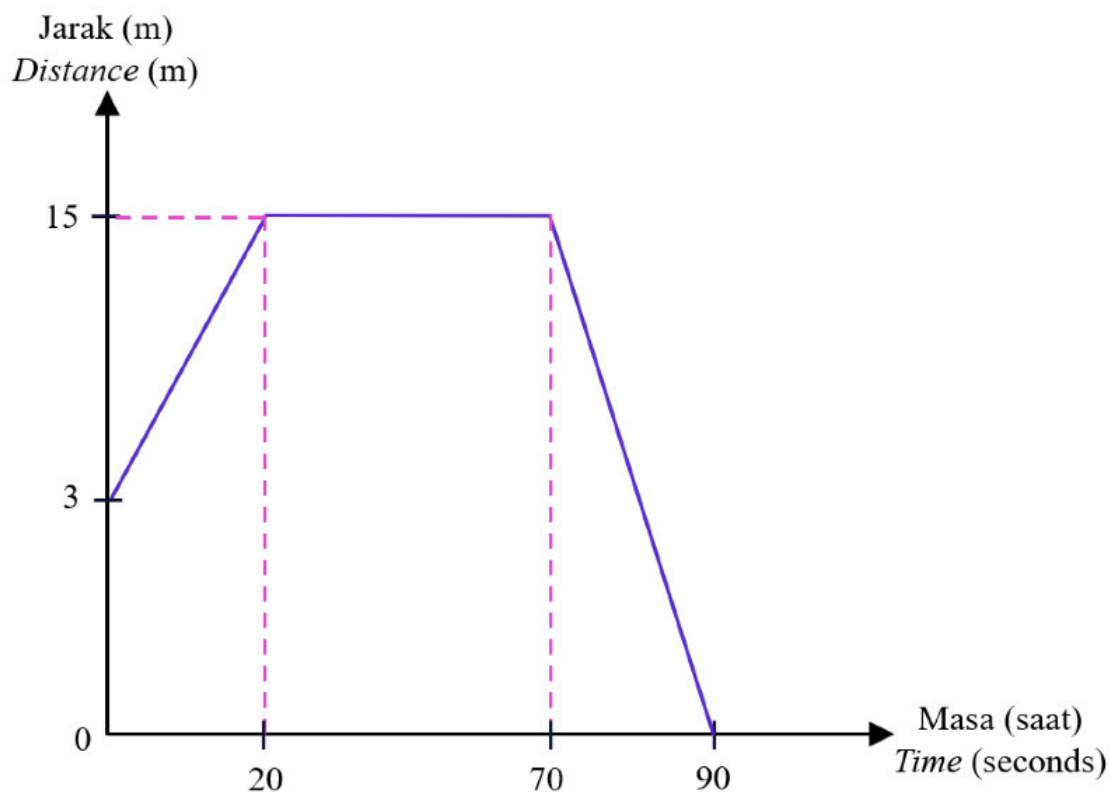
Diagram 5

Tentukan ketaksamaan yang mewakili kawasan berlorek.

*Determine the inequality that represents the shaded region.*

- A**  $2y < 3x + 7$
- B**  $2y \leq 3x + 7$
- C**  $2y > 3x + 7$
- D**  $2y \geq 3x + 7$

20 Rajah 6 menunjukkan graf jarak-masa bagi sebuah kereta mainan.  
[S] *Diagram 6 shows the distance-time graph of a toy car.*



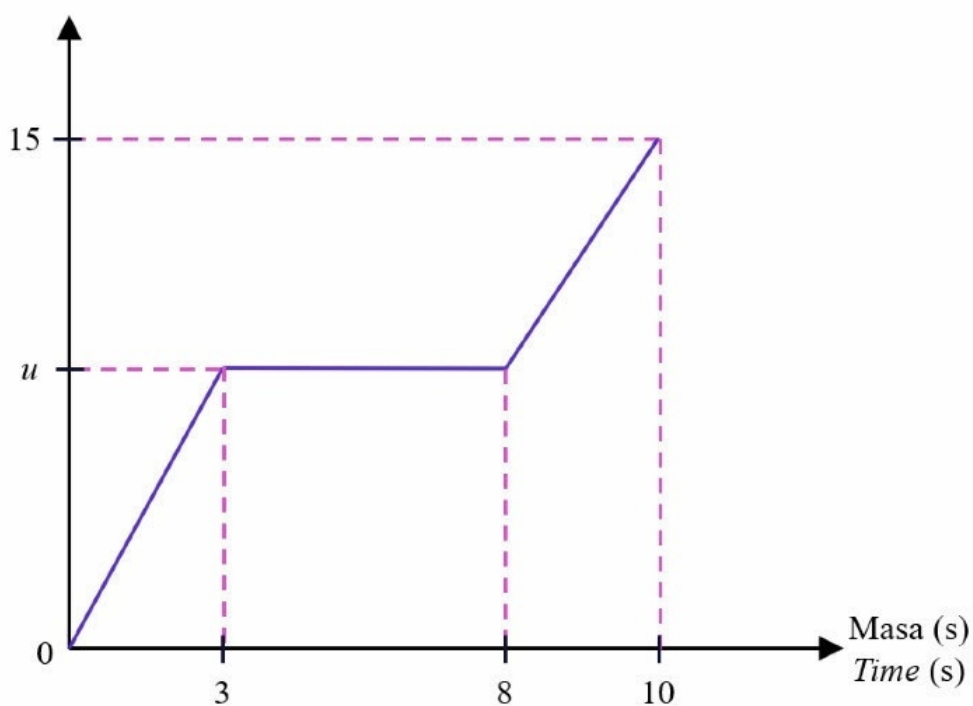
Rajah 6  
*Diagram 6*

Hitung kadar perubahan jarak, dalam m/s, bagi 20 saat pertama.  
*Calculate the rate of change of distance, in m/s, in the first 20 seconds.*

- A -0.75
- B 0.75
- C 0.6
- D -0.6

- 21 Rajah 7 menunjukkan graf laju – masa bagi pergerakan suatu zarah dalam tempoh masa 10 saat.  
[S]

*Diagram 7 shows a speed time graph for the movement of a particle for a period of 10 seconds.*



Rajah 7

Diagram 7

Diberi jarak yang dilalui dalam tempoh 8 saat pertama ialah 55m, cari nilai  $u$ .

*Given the distance travelled in the first 8 seconds is 55m, find the value of  $u$ .*

- A 4.23
- B 6.88
- C 8.46
- D 13.75

- 22
- Jadual 8 menunjukkan nilai-nilai bagi pemboleh ubah  $x$  dan  $y$ .
- [S]
- Table 8 shows some values of the variables  $x$  and  $y$ .

|     |   |     |
|-----|---|-----|
| $x$ | 4 | $m$ |
| $y$ | 8 | 27  |

Jadual 8  
Table 8

Diberi  $y$  berubah secara langsung dengan kuasa tiga  $x$ , cari nilai  $m$ .  
Given that  $y$  varies directly with the cube of  $x$ , find the value of  $m$ .

- A
- 1.75
- B
- 6
- C
- 13.5
- D
- 216
- 23
- Diberi bahawa  $p$  berubah secara songsang dengan  $q$  dan  $p = 3$  apabila  $q = 6$ .
- [S]
- Cari nilai  $q$  apabila  $p = 7$ .
- It is given that  $p$  varies inversely as  $q$  and  $p = 3$  when  $q = 6$ .
- Find the value of  $q$  when  $p = 7$ .

- A
- $\frac{1}{7}$
- B
- $\frac{7}{18}$
- C
- $\frac{7}{2}$
- D
- $\frac{18}{7}$

**24** Peratusan ko-insurans 70/30 bermaksud

[S] *Percentage 70/30 of co-insurance means*

- A** Pemegang polisi menanggung 70% daripada kos kerugian.  
*The policyholder bears 70% of the cost of the loss.*
- B** Pemegang polisi perlu membayar 30% daripada bayaran premium.  
*The policyholder has to pay 30% of the premium payment.*
- C** Pemegang polisi menanggung 30% daripada bayaran kos kerugian.  
*The policyholder bears 30% of the cost of loss payment*
- D** Pemegang polisi akan menerima 70% daripada kos kerugian.  
*The policyholder will receive 70% of the cost of the loss.*

**25** Antara berikut, yang manakah merupakan matriks identiti,  $I$ , dengan peringkat  $2 \times 2$ .

[R] *Which of the following is an identity matrix,  $I$ , with order  $2 \times 2$ .*

**A**  $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

**B**  $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

**C**  $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

**D**  $\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$

**26** Hitung penentu matriks  $M = \begin{bmatrix} 4 & -2 \\ 3 & 2 \end{bmatrix}$ .

[S]

*Calculate the determinant of matrix  $M = \begin{bmatrix} 4 & -2 \\ 3 & 2 \end{bmatrix}$ .*

- A** 2
- B** 7
- C** 8
- D** 14

27 [S] Pendapatan tahunan Hasya pada tahun 2025 ialah RM 110 200. Dia menderma RM 680 kepada sebuah badan kebajikan yang diiktiraf oleh kerajaan dan membayar zakat berjumlah RM 410 pada tahun tersebut. Jadual 9 menunjukkan pelepasan cukai yang dituntut oleh Hasya.

*Hasya's annual income in 2025 was RM 110 200. She donated RM 680 to a government-recognised charitable organisation and paid zakat amounting to RM 410 during that year. Table 9 shows the tax reliefs claimed by Hasya.*

| Perkara<br><i>Item</i>                                                                                             | Amaun (RM)<br><i>Amount (RM)</i> |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Individu<br><i>Individual</i>                                                                                      | 9 000                            |
| Skim Simpanan Pendidikan Nasional (had RM 8 000)<br><i>National Education Savings Scheme (limited to RM 8 000)</i> | 6 000                            |
| Insurans hayat dan KWSP (had RM 7 000)<br><i>Life insurance and EPF (limited to RM 7 000)</i>                      | 5 500                            |
| Gaya hidup (had RM 2 500)<br><i>Life style (limited to RM 2 500)</i>                                               | 1 200                            |

Jadual 9  
*Table 9*

Hitung pendapatan bercukai Hasya.  
*Calculate Hasya's chargeable income.*

- A RM 82 610
- B RM 83 020
- C RM 87 410
- D RM 87 820

- 28** [T] Sebuah bot bergerak dari jeti ke utara sejauh 9 km dan kemudian membelok ke arah timur sejauh 12 km.

Hitung jarak terpendek, dalam km, bot itu dari jeti.

*A boat travels from a jetty towards the north for 9 km and then turns towards the east for 12 km.*

*Calculate the shortest distance, in km, of the boat from the jetty, in km.*

- A** 7.5
- B** 10.5
- C** 15
- D** 21

- 29** [R] Sebuah kotak mengandungi 10 biji guli biru, 7 biji guli kuning dan 6 biji guli putih. Sebiji guli diambil secara rawak daripada kotak tersebut.

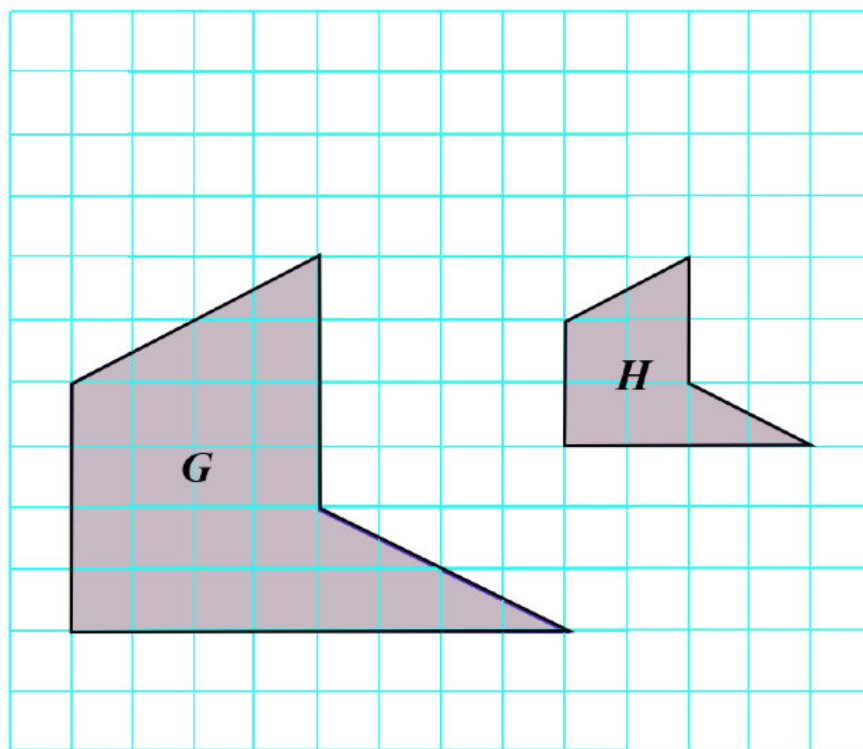
Cari kebarangkalian memilih sebiji guli yang **bukan** berwarna biru.

*A box contains 10 blue marbles, 7 yellow marbles and 6 white marbles. A marble is chosen at random from the box.*

*Find the probability of choosing a marble that is **not** blue.*

- A**  $\frac{6}{23}$
- B**  $\frac{7}{23}$
- C**  $\frac{13}{23}$
- D**  $\frac{17}{23}$

- 30 Rajah 10 menunjukkan objek **G** dan lukisan berskala **H** yang dilukis pada grid segi empat sama.  
[R] *Diagram 10 shows object **G** and a scale drawing **H** drawn on a square grid.*



Rajah 10  
Diagram 10

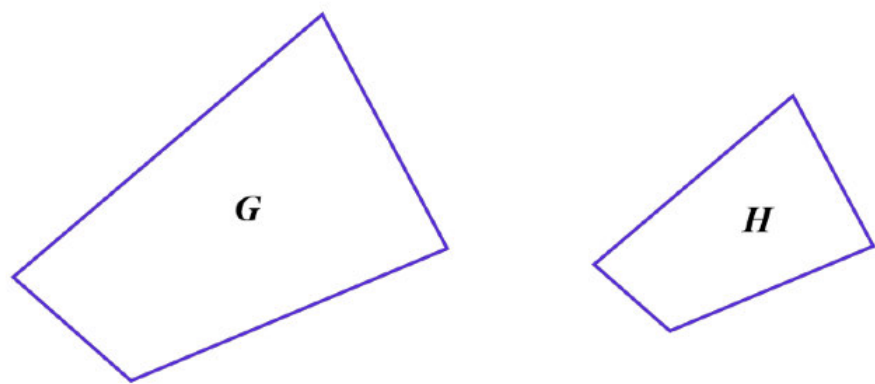
Nyatakan skala yang digunakan.

*State the scale used.*

- A 1 : 2
- B 1 : 0.5
- C 1 : 2.5
- D 2 : 1

- 31 Rajah 11 menunjukkan sisi empat **G** ialah imej bagi sisi empat **H** di bawah suatu pembesaran.  
[R] Luas **H** ialah 30 cm<sup>2</sup> dan faktor skala,  $k = 2$ .

*Diagram 11 shows quadrilateral **G** is the image of quadrilateral **H** under an enlargement. The area **H** is 30 cm<sup>2</sup> and the scale factor,  $k = 2$ .*



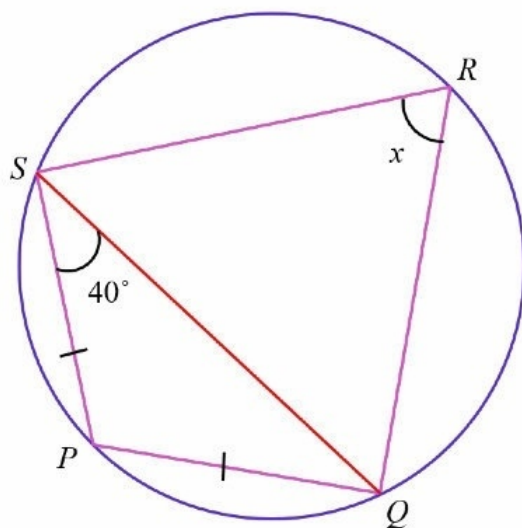
Rajah 11  
Diagram 11

Hitung luas, dalam cm<sup>2</sup>, bagi imej foto tersebut.  
*Calculate the area, in cm<sup>2</sup>, of the image of the photo.*

- A 7.5
  - B 15
  - C 60
  - D 120
- 32 Antara pernyataan berikut, yang manakah **salah** tentang percukaian?  
[S] *Which of the following statement is **wrong** about taxation?*
- A Satu proses memungut hasil daripada individu atau masyarakat.  
*A process of collecting revenue from individuals or companies.*
  - B Semua cukai yang dipungut Adalah berdasarkan pada akta kerajaan.  
*All taxes are collected based on the government acts.*
  - C Percukaian ialah satu sumber pendapatan utama bagi kerajaan.  
*Taxation is a main source of government revenue.*
  - D Hanya individu dengan pendapatan sangat tinggi dikehendaki membayar cukai pendapatan.  
*Individuals with high income only need to pay income tax.*

- 33 Rajah 12 menunjukkan sebuah bulatan dengan sisi empat kitaran  $PQRS$ ,  $SQ$  ialah perentas, [R]  $SP = PQ$  dan  $\angle PSQ = 40^\circ$ .

Diagram 12 shows a circle with cyclic quadrilateral  $PQRS$ ,  $SQ$  is a chord,  $SP = PQ$  and  $\angle PSQ = 40^\circ$ .



Rajah 12  
Diagram 12

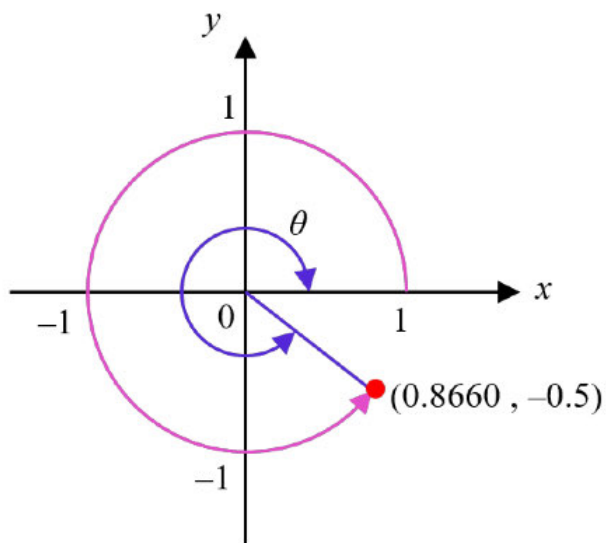
Cari nilai  $x$ .

Find the value of  $x$ .

- A  $40^\circ$
- B  $80^\circ$
- C  $100^\circ$
- D  $140^\circ$

34 Rajah 13 menunjukkan satu bulatan unit dengan sudut  $\theta$ .

[R] *Diagram 13 shows a unit circle and angle  $\theta$ .*



Rajah 13

*Diagram 13*

Cari nilai kos  $\theta$ .

*Find the value of  $\cos \theta$ .*

- A     $-0.5$
- B     $0.5$
- C     $0.8660$
- D     $-0.8660$

35    Diberi:  
[R]    Given:

Set semesta,  $\xi = P \cup Q \cup R$ .  
*Universal set,  $\xi = P \cup Q \cup R$ .*

Set  $P = \{h, i, j, k, l\}$ .

Set  $Q = \{j, k, l, m\}$ .

Set  $R = \{k, l, m, n\}$ .

Senaraikan semua unsur bagi  $P' \cup R$ .  
*List all the elements of  $P' \cup R$ .*

- A     $\{m, n\}$
- B     $\{k, l\}$
- C     $\{k, l, m, n\}$
- D     $\{h, i, j, k, l, m, n\}$

36    Jadual 14 menunjukkan maklumat bagi markah Matematik dua kumpulan murid.  
[T]    *Table 14 shows the information of Mathematics marks for two groups of pupils.*

| Kumpulan<br><i>Group</i> | Bilangan murid<br><i>Number of students</i> | $\bar{x}$ |
|--------------------------|---------------------------------------------|-----------|
| $P$                      | 19                                          | 50        |
| $Q$                      | 11                                          | 55        |

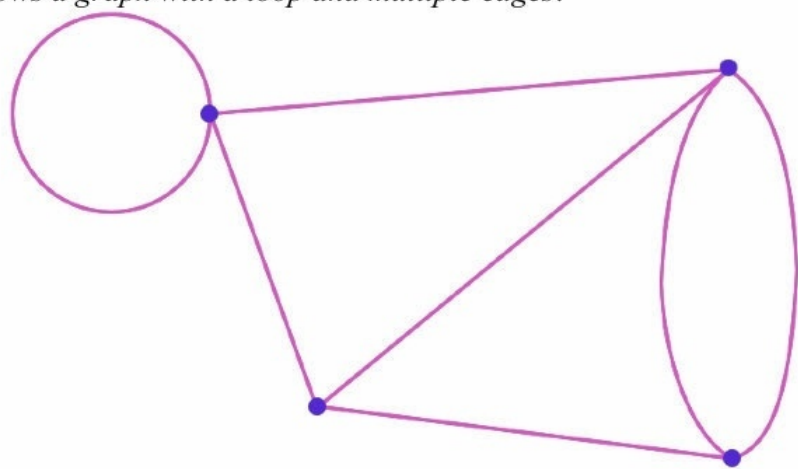
Jadual 14  
*Table 14*

Semua murid dari kumpulan  $P$  dan Kumpulan  $Q$  akan digabungkan, hitung min markah yang baru.

*All students in group  $P$  and group  $Q$  are combined, calculate the new mean marks.*

- A    51.83
- B    52.50
- C    52.75
- D    53.17

37 Rajah 15 menunjukkan satu graf yang mempunyai gelung dan berbilang tepi.  
[R] *Diagram 15 shows a graph with a loop and multiple edges.*



Rajah 15  
Diagram 15

Tentukan bilangan tepi dan jumlah darjah bagi graf tersebut.  
*Determine the number of edges and sum of degree of the graph.*

|   | Bilangan tepi<br><i>Number of edge</i> | Bilangan darjah<br><i>Sum of degree</i> |
|---|----------------------------------------|-----------------------------------------|
| A | 6                                      | 11                                      |
| B | 6                                      | 12                                      |
| C | 7                                      | 13                                      |
| D | 7                                      | 14                                      |

38 Jadual 16 menunjukkan bilangan ahli pasukan tenis SMK Jaya.

[T] Table 16 shows the number of SMK Jaya’s tennis team member.

| Kategori<br><i>Category</i>       | Bilangan ahli perempuan<br><i>Number of female members</i> |
|-----------------------------------|------------------------------------------------------------|
| Bawah 15 tahun<br><i>Under 15</i> | 8                                                          |
| Bawah 18 tahun<br><i>Under 18</i> | $x$                                                        |

Jadual 16

Table 16

Dua orang ahli dipilih secara rawak seorang demi seorang dari ahli perempuan dan kebarangkalian kedua-dua ahli bawah 18 tahun dipilih ialah  $\frac{5}{17}$ .

Hitung jumlah ahli bagi pasukan tenis sekolah itu.

Two members are selected at random one by one from the female members and the probability that both members who are under 18 is chosen is  $\frac{5}{17}$ .

Calculate the total number of tennis team members of the school.

- A 10
- B 11
- C 18
- D 19

39 Sempadan bawah dan sempadan atas bagi suatu selang kelas masing-masing ialah 33.55 dan 35.55.

[R]

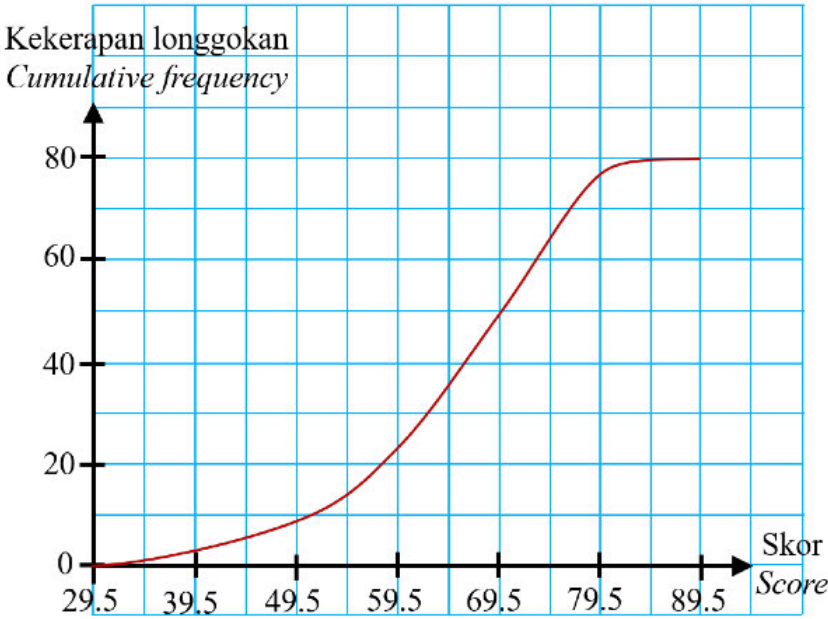
Nyatakan selang kelas bagi data tersebut.

The lower boundary and the upper boundary of a class interval are 33.55 and 35.55 respectively.

State the class interval of the data.

- A 33.50 – 35.60
- B 33.55 – 35.55
- C 33.60 – 35.50
- D 33.65 – 35.65

40 Rajah 17 ialah satu ogif yang menunjukkan skor murid aliran sains dalam satu kuiz  
[T] Diagram 17 is an ogive that shows the scores of science stream students in a quiz.

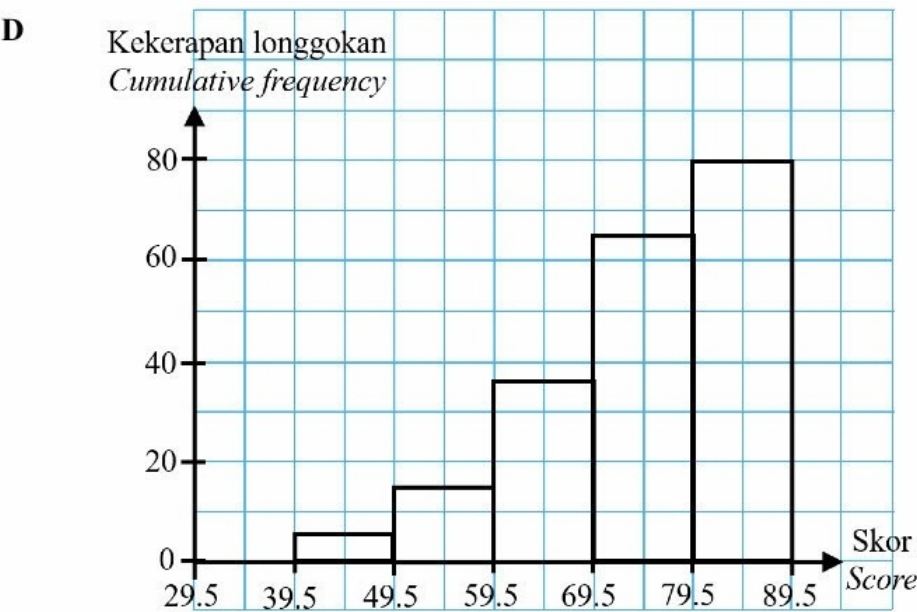
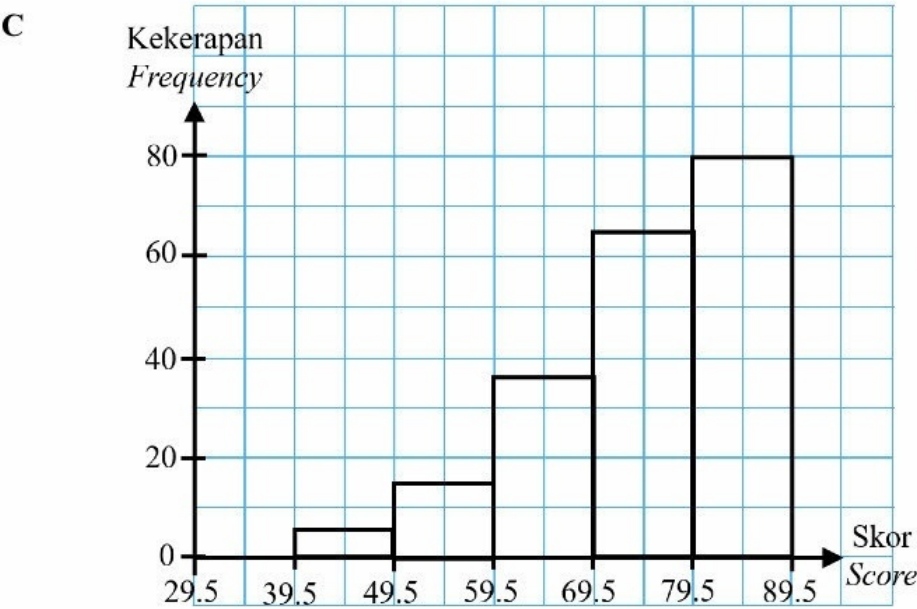


Rajah 17  
Diagram 17

Antara berikut, histogram manakah yang mewakili ogif tersebut?  
Which of the following histogram represents the ogive?

- A**      Kekerapan  
Frequency
- B**      Kekerapan longgokan  
Cumulative frequency





KERTAS SOALAN TAMAT