

TERHAD



i-MODUL KECEMERLANGAN SPM SMKA DAN SABK 2023

SIJIL PELAJARAN MALAYSIA 2023 (SET 1)

MATEMATIK

1449/1

KERTAS 1

$1\frac{1}{2}$ jam

Satu jam tiga puluh minit

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1. *Kertas ini mengandungi 40 soalan dan dalam dwibahasa.*
2. *Jawab SEMUA soalan.*
3. *Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
4. *Satu senarai rumus disediakan di halaman 2, 3 dan 4.*
5. *Anda dibenarkan menggunakan kalkulator saintifik.*

Kertas peperiksaan ini mengandungi 30 halaman bercetak.

**NOMBOR DAN OPERASI
NUMBER AND OPERATIONS**

- | | |
|---|--|
| <p>1 $a^m \times a^n = a^{m+n}$</p> <p>3 $(a^m)^n = a^{mn}$</p> <p>5 $a^{\frac{m}{n}} = (a^m)^{\frac{1}{n}} = (a^{\frac{1}{n}})^m$</p> <p>7 Faedah mudah / <i>Simple interest, I = Prt</i></p> <p>9 Jumlah bayaran balik / <i>Total repayment, A = P + Prt</i></p> <p>10 $\text{Premium} = \frac{\text{Nilai muka polisi}}{\text{RMx}} \times (\text{Kadar premium per RMx})$ $\text{Premium} = \frac{\text{Face value of policy}}{\text{RMx}} \times (\text{Premium rate per RMx})$</p> | <p>2 $a^m \div a^n = a^{m-n}$</p> <p>4 $a^{\frac{1}{n}} = \sqrt[n]{a}$</p> <p>6 $a^{\frac{m}{n}} = \sqrt[n]{a^m} = (\sqrt[n]{a})^m$</p> <p>8 Nilai matang/<i>Maturity value, MV = P \left(1 + \frac{r}{n}\right)^{nt}</i></p> |
| <p>11 Jumlah insurans yang harus dibeli = $\left(\begin{matrix} \text{Peratusan} \\ \text{ko-insurans} \end{matrix} \right) \times \left(\begin{matrix} \text{Nilai boleh} \\ \text{insurans harta} \end{matrix} \right)$</p> <p><i>Amount of required insurance = $\left(\begin{matrix} \text{Percentage of} \\ \text{co-insurance} \end{matrix} \right) \times \left(\begin{matrix} \text{Insurable value} \\ \text{of property} \end{matrix} \right)$</i></p> | |

**PERKAITAN DAN ALGEBRA
RELATIONSHIP AND ALGEBRA**

- | | |
|--|---|
| <p>1 <i>Jarak/Distance</i></p> $= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ <p>3 <i>Laju Purata = $\frac{\text{Jumlah jarak}}{\text{Jumlah masa}}$</i></p> $\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$ <p>5 $A^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$</p> | <p>2 <i>Titik Tengah / midpoint,</i></p> $(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$ <p>4 $m = \frac{y_2 - y_1}{x_2 - x_1}$</p> <p>6 $m = -\frac{\text{pintasan-y}}{\text{pintasan-x}}$</p> $m = -\frac{\text{y-intercept}}{\text{x-intercept}}$ |
|--|---|

SUKATAN DAN GEOMETRI
MEASUREMENT AND GEOMETRY

- 1 Teorem Pythagoras / *Pythagoras Theorem* $c^2 = a^2 + b^2$

- 2 Hasil tambah sudut pedalaman poligon / *Sum of interior angles of a polygon*
 $= (n - 2) \times 180^\circ$

- 3 Lilitan bulatan = $\pi d = 2\pi j$
Circumference of circle = $\pi d = 2\pi r$

- 4 Luas bulatan = πj^2
Area of circle = πr^2

$$\frac{\text{Panjang lengkok}}{2\pi j} = \frac{\theta}{360^\circ}$$

- 5
$$\frac{\text{Arc length}}{2\pi r} = \frac{\theta}{360^\circ}$$

- 6
$$\frac{\text{Luas sektor}}{\pi j^2} = \frac{\theta}{360^\circ}$$

Area of sector = $\frac{\theta}{360^\circ} \pi r^2$

- 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 tegak = luas keratan rentas \times tinggi
Volume of right prism = cross sectional area \times height

- 13 Isi padu silinder = $\pi j^2 t$
Volume of cylinder = $\pi r^2 h$

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

STATISTIK DAN KEBARANGKALIAN
STATISTICS AND PROBABILITY

- 1 Min / Mean, $\bar{x} = \frac{\sum x}{N}$
- 2 Min / Mean, $\bar{x} = \frac{\sum fx}{f}$
- 3 Varians / Variance, $\sigma^2 = \frac{\sum (x - \bar{x})^2}{N} = \frac{\sum x^2}{N} - \bar{x}^2$
- 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.

*Answer **all** questions.*

- 1 Ungkapkan 1153.6×10^3 dalam bentuk piawai.

Express 1153.6×10^3 in standard form.

- A 1.1536×10^6
- B 1.1536×10^3
- C 1.1536×10^{-3}
- D 1.1536×10^{-6}

- 2 Zuhdi mempunyai 168 kg pasir. Dia menggunakan 60% daripada pasir itu untuk membuat dinding. Baki pasir itu dibahagikan sama banyak ke dalam 3 beg. Cari jisim, dalam g, pasir di dalam setiap beg itu.

Zuhdi has 168 kg of sand. He used 60% of the sand to make a wall. The remaining sand is divided equally into 3 bags. Find the mass, in g, of the sand in each bag.

- A 2.24×10^{-4}
- B 2.24×10^4
- C 3.36×10^{-4}
- D 3.36×10^4

- 3 Diberi $\frac{x+1}{5} = \frac{2x-1}{2}$, hitung nilai x .

Given $\frac{x+1}{5} = \frac{2x-1}{2}$, calculate the value of x .

- A $\frac{1}{4}$
- B $\frac{3}{4}$
- C $\frac{7}{9}$
- D $\frac{7}{8}$

- 4 Luas segi empat sama ialah 289 cm^2 . Cari perimeter dalam cm, segiempat sama itu.

The area of a square is 289 cm^2 . Find perimeter, in cm, of the square.

- A 17
- B 34
- C 60
- D 68

- 5 Permudahkan :

Simplify :

$$\frac{3^2 x^3 y^5 \times (-8x^2 y)}{24xy^4}$$

- A $-3x^6 y^{10}$
- B $-3x^4 y^2$
- C $-\frac{3x^2}{y}$
- D $-\frac{3}{x^2 y}$

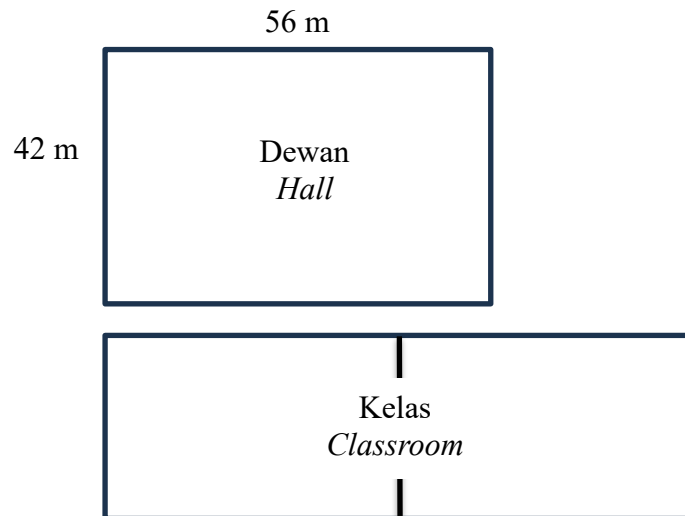
- 6 Diberi $t = \frac{2}{3} + \frac{m}{4}$, ungkapkan m dalam sebutan t .

Given $t = \frac{2}{3} + \frac{m}{4}$, Express m in terms of t .

- A $m = \frac{3t - 2}{3}$
- B $m = \frac{3t + 3}{3}$
- C $m = \frac{4(3t - 2)}{3}$
- D $m = \frac{4(2 + 3t)}{3}$

- 7 Rajah 1 berikut menunjukkan sebuah dewan dan dua buah kelas.

Diagram 1 below shows a hall and two classrooms.



Rajah 1

Diagram 1

Diberi panjang dan lebar dewan masing-masing ialah 56 m dan 42 m, manakala lebar sebuah kelas ialah $\frac{2}{3}$ lebar dewan. Jika luas dewan adalah sama dengan luas dua buah kelas, hitung panjang, dalam m, bagi sebuah kelas.

Given that the length and the width of the hall are 56 m and 42 m respectively, while the width of a classroom is $\frac{2}{3}$ of the width of the hall. If the area of the hall is the same as the area of two classrooms, find the length, in m, of a classroom.

- A 56 m
- B 37 m
- C 42 m
- D 28 m

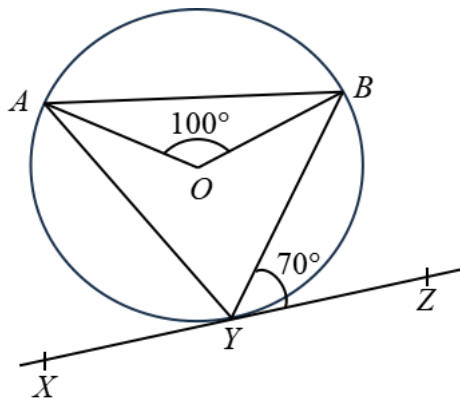
8 Antara pernyataan berikut, yang manakah **benar** mengenai poligon sekata?

*Which of the following statements is **true** about a regular polygon?*

- A Sebuah poligon sekata mempunyai sisi yang tidak sama panjang
A regular polygon has irregular sides.
- B Saiz sudut pedalaman poligon sekata adalah tidak sama.
The interior angles of a regular polygon are unequal.
- C Bilangan paksi simetri bagi sebuah poligon sekata adalah sama dengan bilangan sisi poligon itu.
The number of axes of symmetry of a regular polygon is equal to the number of sides of the polygon.
- D Hasil tambah sudut peluaran dan sudut pedalaman sebuah poligon sekata ialah 360° .
The sum of exterior angles and interior angles of a regular polygon is 360° .

9 Dalam Rajah 2, XYZ ialah tangen kepada bulatan berpusat di O .

In Diagram 2, XYZ is a tangent to the circle with centre O .



Rajah 2

Diagram 2

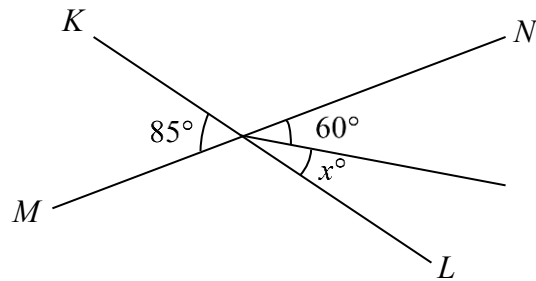
Cari $\angle ABY$.

Find $\angle ABY$.

- A 50°
- B 60°
- C 70°
- D 100°

- 10 Rajah 3 menunjukkan dua garis lurus KL dan MN .

Diagram 3 shows two straight lines KL and MN .



Rajah 3
Diagram 3

Cari nilai x .

Find the value of x .

- A 15°
 - B 20°
 - C 25°
 - D 30°
- 11 Hitung nilai y bagi setiap persamaan berikut:

Calculate the value of y for the following equation:

$$5^4 \div 5^{2y} = 5^{3(6y-2)}$$

- A $\frac{1}{2}$
- B 2
- C $\frac{5}{4}$
- D $-\frac{5}{4}$

- 12 Diberi bahawa $243^{2x} = 9^{x+1}$. Cari nilai x .

Given that $243^{2x} = 9^{x+1}$ Find the value of x .

A 4

B $\frac{1}{4}$

C 8

D $\frac{1}{8}$

- 13 Ungkapkan 110011_2 sebagai satu nombor dalam asas 7.

Express 110011_2 as a number in base 7.

A 12_7

B 51_7

C 102_7

D 201_7

- 14 Dalam suatu projek inovasi, 5 orang murid ditugaskan untuk membina model pejabat 3D. Masa yang diperlukan untuk menyiapkan projek itu ialah 4 hari. Diberi masa, t berubah secara songsang dengan bilangan murid, n . Hitung masa, dalam hari, yang diperlukan jika bilangan murid membuat projek ini berganda dua kali.

In an innovation project, 5 students were assigned to build a 3D office model. The time required to complete the project is 4 days. Given time, t varies inversely as the number of students, n . Calculate the time, in days, needed if the number of students to complete this project is double.

A 1

B 2

C 6

D 10

- 15 Diberi w berubah secara langsung dengan x^2 dan secara songsang dengan z .

Jika $w = 20$, apabila $x = 5$ dan $z = 2$, cari nilai z apabila $w = 160$ dan $x = 40$.

It is given that w varies directly as x^2 and inversely as z .

If $w = 20$, when $x = 5$ and $z = 2$, find the value of z when $w = 160$ and $x = 40$.

A $\frac{8}{5}$

B $\frac{40}{25}$

C 2

D 16

- 16 Antara berikut, yang manakah ialah pernyataan?

Which of the following is a statement?

A $9 + 2$

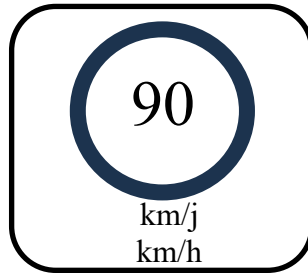
B $x - 7$

C $5^2 = 24$

D $x^2 - 3x + 2$

- 17 Rajah 4 di bawah menunjukkan satu papan had laju.

The diagram 4 below shows a sign of speed limit.



Rajah 4

Diagram 4

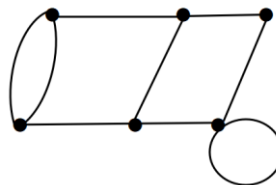
Diberi x menandakan kelajuan, dalam km/j, bagi sebuah kenderaan yang dibenarkan.

Antara berikut, yang manakah adalah **benar**?

Given x represents speed limit, in km/h, for an authorized vehicle.

*Which of the following is **correct**?*

- A $x = 90$
 - B $x > 90$
 - C $x < 90$
 - D $x \leq 90$
- 18 Rajah 5 berikut menunjukkan suatu graf yang mempunyai berbilang tepi dan gelung.
Diagram 5 below shows a graph has multiple edges and loops.



Rajah 5

Diagram 5

Tentukan $n(E)$.

Determine $n(E)$.

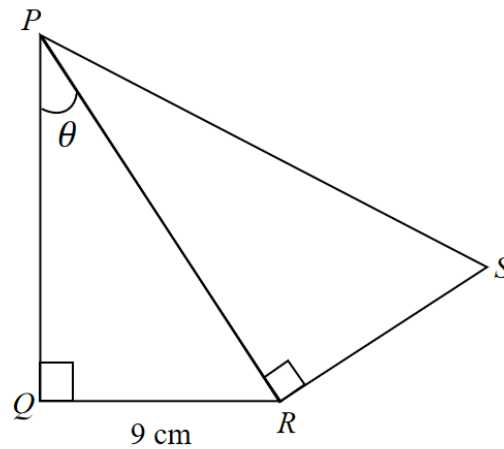
- A 8
- B 9
- C 10
- D 11

19 Rajah 6 berikut menunjukkan segitiga bersudut tegak PQR dan PRS .

Diberi bahawa $\tan \theta = \frac{3}{4}$ dan $PS = \frac{5}{3} PR$.

The diagram 6 shows right-angled triangles PQR and PRS .

Given that $\tan \theta = \frac{3}{4}$ dan $PS = \frac{5}{3} PR$.



Rajah 6

Diagram 6

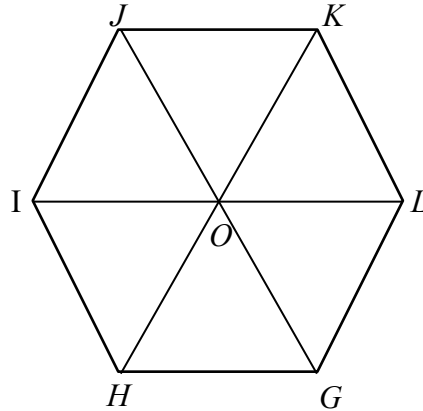
Hitung, dalam cm, panjang PS .

Calculate, in cm, the length of PS .

- A 9 cm
- B 15 cm
- C 22 cm
- D 25 cm

- 20 Rajah 7 menunjukkan sebuah heksagon sekata yang dibahagi sama rata kepada enam bahagian.

Diagram 7 shows a hexagon is equally divided into six section.



Rajah 7
Diagram 7

Antara berikut yang manakah bukan kongruen dengan sisi empat $OJKL$?

Which of the following is not congruent with the quadrilateral $OJKL$?

- A $OHIJ$
 - B $GHIO$
 - C $HGLO$
 - D $GHKL$
- 21 Aiman ingin membeli sebuah kereta yang bernilai RM125 000 secara kredit. Beliau akan membayar bayaran pendahuluan sebanyak 10% dan bakinya dibayar secara ansuran selama 7 tahun. Kadar faedah sama rata yang dikenakan oleh bank ialah 4% setahun. Berapakah jumlah bayaran ansuran bulanan yang perlu dibayar oleh Aiman?
- Aiman wants to buy a car worth RM125 000 on credit. He will pay an advance payment of 10% and the balance will be paid in installments over 7 years. The average interest rate charged by the bank is 4% per annum. What is the total monthly instalment that Aiman has to pay?*
- A RM 1714.29
 - B RM1755.95
 - C RM1863.10
 - D RM1904.76

- 22 Faizal memiliki sebuah kereta *Honda Accord 2.0* di Putrajaya. Maklumat bagi kereta itu adalah seperti berikut :

Faizal owns a Honda Accord 2.0 car in Putrajaya. The information for the car is as follows:

Jumlah yang ingin diinsuranskan	: RM103 000
<i>Sum insured</i>	
NCD	: 25 %

Kapasiti enjin tidak melebihi (cc) <i>Engine capacity not exceeding (cc)</i>	Semenanjung Malaysia <i>Peninsular Malaysia</i>		Sabah dan Sarawak <i>Sabah and Sarawak</i>	
	Polisi komprehensif (RM) <i>Comprehensive Policy (RM)</i>	Polisi pihak ketiga (RM) <i>Third party policy (RM)</i>	Polisi Komprehensif (RM) <i>Comprehensive Policy (RM)</i>	Polisi Pihak ketiga (RM) <i>Third party policy (RM)</i>
1650	305.50	135.00	220.00	75.60
2200	339.10	151.20	243.90	85.20
3050	372.60	167.40	266.50	93.60

Tarif Motor

Jadual 1
Table 1

Jika premium asas bagi polisi komprehensif ialah RM2 991.10, hitung premium kasar bagi polisi pihak ketiga.

If the basic premium for the comprehensive policy is RM2 991.10, calculate the gross premium for the third party policy.

- A RM113.40
- B RM151.20
- C RM189.00
- D RM339.10

- 23 Zawawi memiliki sebuah rumah kediaman di Terengganu. Diberi bahawa nilai tahunan ialah RM6 600 dan kadar cukai pintu ialah 4%. Majlis Perbandaran Besut telah mengeluarkan bil cukai pintu yang perlu dibayar oleh Zawawi. Hitung cukai pintu yang dikenakan kepada Zawawi untuk setiap setengah tahun.

Zawawi owns a house in Terengganu. Given that the annual value is RM6 600 and the property assessment tax rate is 4%. The Besut Municipal Council has issued a property assessment tax bill to be paid by Zawawi. Calculate the property assessment tax charged to Zawawi for every half-year.

- A RM88
- B RM132
- C RM264
- D RM6 336

- 24 Dalam satu pertandingan menembak, setiap peserta diberikan sejumlah peluru untuk menembak ke sasaran. Kebarangkalian untuk Fathi berjaya menembak tepat ke sasaran ialah $\frac{2}{7}$. Hitung jumlah peluru yang dibekalkan untuk setiap peserta jika 10 peluru yang ditembak oleh Fathi tidak mengena sasaran.

In a shooting competition, each participant is given a number of bullets to shoot at a target. The probability for Fathi to successfully hit the target is $\frac{2}{7}$. Calculate the number of bullets supplied to each participant if 10 bullets fired by Fathi miss the target.

- A 4
- B 5
- C 14
- D 28

- 25 Koperasi SMK Setia menghadihkan satu plastik berisi makanan dan satu kotak minuman kepada sekumpulan sepuluh orang murid yang hadir sebagai peserta bagi Kuiz Matematik Peringkat Daerah. Di dalam plastik makanan itu mengandungi 6 biji roti coklat dan 9 biji roti jagung, manakala di dalam kotak minuman pula mengandungi 5 kotak air berperisa laici dan 7 kotak air berperisa oren. Anis merupakan orang pertama yang mengambil makanan dan minuman tersebut. Anis mengambil satu roti dan satu kotak minuman.

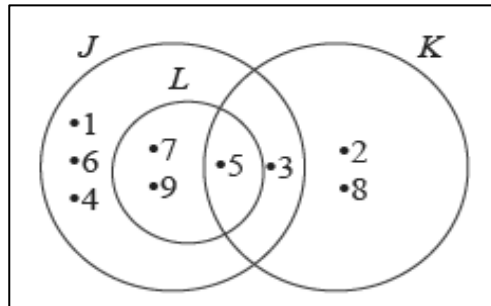
Apakah kebarangkalian Anis mengambil roti coklat **atau** air berperisa laici?

*Koperasi SMK Setia is giving away a plastic bag containing foods and a box of drinks to a group of ten students who attended as participants in the District Level Mathematics Quiz. The food bag contains 6 pieces of chocolate flavored bread and 9 pieces of corn flavored bread, while the drink box contains 5 boxes of lychee flavored drink and 7 boxes of orange flavored drink. Anis is the first person that takes the food and drinks. Anis takes one piece of bread and one box of drinks. What is the probability that Anis takes one chocolate flavored bread **or** one lychee flavored drink?*

- A $\frac{13}{20}$
B $\frac{11}{17}$
C $\frac{27}{60}$
D $\frac{49}{60}$

- 26 Rajah 8 adalah sebuah gambar rajah Venn yang menunjukkan set semesta, ζ , set J , set K , dan set L .

Diagram 8 is a Venn diagram showing set ζ , set J , set K and set L .



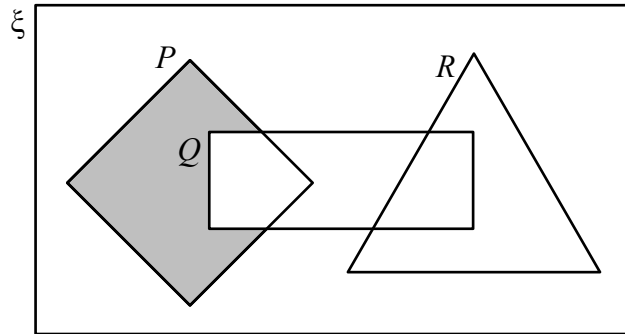
Rajah 8
Diagram 8

Senaraikan semua unsur bagi persilangan set $K \cap J$.

List all the elements of the intersection of the set $K \cap J$.

- A { 3 }
- B { 5 }
- C { 3, 5 }
- D { 3, 5, 7, 9 }

- 27 Rajah 9 ialah gambar rajah Venn dengan set semesta, $\xi = P \cup Q \cup R$.
Diagram 9 is a Venn diagram with the universal set, $\xi = P \cup Q \cup R$.



Rajah 9

Diagram 9

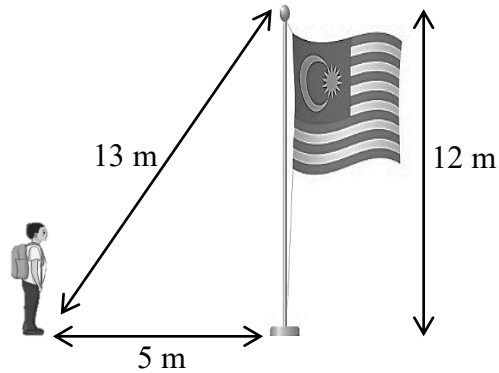
Antara berikut, yang manakah mewakili rantau berlorek?

Which of the following represents the shaded region?

- A $(P \cap Q)' \cap P$
- B $(Q \cap R)' \cap P$
- C $(P \cup Q) \cap R'$
- D $(P \cup R) \cap Q'$

28 Rajah 10 menunjukkan Ali sedang melihat ke puncak tiang bendera.

Diagram 10 shows Ali is looking at the top of a flag pole.



Rajah 10

Diagram 10

Nyatakan jarak mengufuk dan jarak mencancang di antara Ali dan puncak tiang bendera.

State the horizontal distance and vertical distance between Ali and the top of a flag pole.

	Jarak mengufuk (m) <i>Horizontal distance</i>	Jarak mencancang (m) <i>Vertical distance</i>
A	12	5
B	12	13
C	5	12
D	5	13

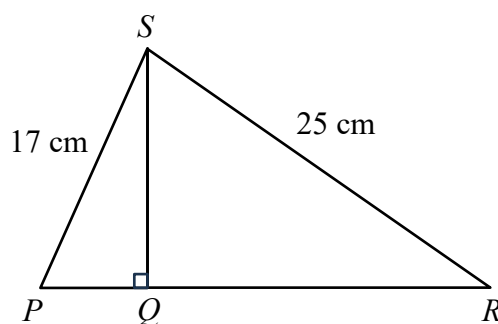
- 29 Cari persamaan garis lurus yang melalui titik $B(-2, 3)$ dan selari dengan garis lurus $y = -\frac{1}{4}x - 2$.

Find the equation of the straight line which passes through point $B(-2, 3)$ and is parallel to the straight line $y = -\frac{1}{4}x - 2$.

- A $y = -\frac{1}{4}x - 1$
 B $y = -\frac{1}{4}x + 1$
 C $y = -\frac{1}{4}x - \frac{5}{2}$
 D $y = -\frac{1}{4}x + \frac{5}{2}$

- 30 Rajah 11 menunjukkan sebuah segi tiga PRS . PQR merupakan suatu garis lurus dan $\sin \angle QRS = \frac{3}{5}$.

Diagram 11 shows a triangle PRS . PQR is a straight line and $\sin \angle QRS = \frac{3}{5}$.



Rajah 11
Diagram 11

Cari Panjang PR .

Find the length of PR .

- A 20 cm
 B 28 cm
 C 33 cm
 D 42 cm

- 31 Maklumat di bawah menunjukkan nisbah skor yang diperoleh Kumpulan P dan Kumpulan Q dalam suatu pertandingan kuiz.

The information below shows the ratio of scores obtained by Group P and Group Q in a quiz competition.

Nisbah skor Kumpulan P
Cheng : Rahimi : Hussin 5 : 4 : 7

Nisbah skor Kumpulan Q
Nureen : Bala : Shanthi 3 : 2 : 1

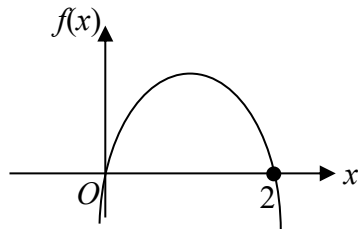
Jumlah skor yang diperoleh Kumpulan P ialah 144 manakala jumlah skor yang diperoleh Kumpulan Q ialah 168. Cari hasil tambah skor Rahimi dan Nureen.

The total score obtained by Group P is 144 while the total score obtained by Group Q is 168. Find the sum of the scores of Rahimi and Nureen.

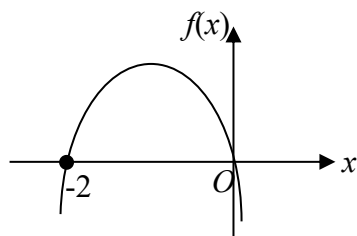
- A 60
- B 84
- C 120
- D 147

- 32 Graf manakah yang mewakili $f(x) = x^2 + 2x$
Which graph represent $f(x) = x^2 + 2x$

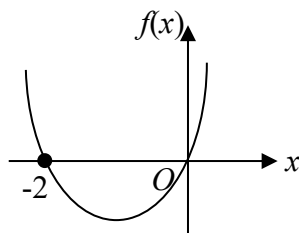
A



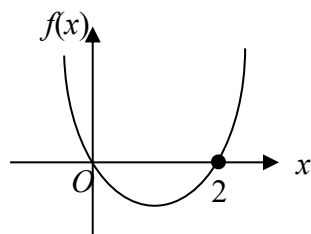
B



C



D



- 33 Jadual 2 menunjukkan suhu, dalam $^{\circ}\text{C}$, yang dicatatkan dalam suatu bulan tertentu.
Table 2 shows the temperature, in $^{\circ}\text{C}$, recorded in a particular month.

Suhu ($^{\circ}\text{C}$) <i>Temperature</i> ($^{\circ}\text{C}$)	Kekerapan <i>Frequency</i>
21 – 25	7
26 – 30	9
31 – 35	$x + 2$
36 – 40	x

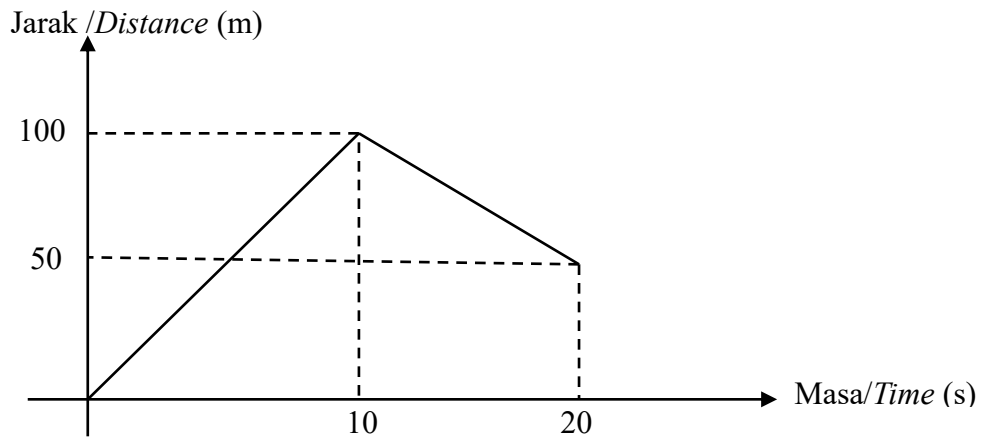
Jadual 2
Table 2

Diberi min suhu ialah 30.17°C . Cari nilai bagi x .

Given the mean of temperature is 30.17°C . Find the value of x .

- A 6
- B 7
- C 8
- D 9

- 34 Rajah 12 menunjukkan graf jarak-masa bagi sebuah lori dalam tempoh 20 saat.
Diagram 12 shows the distance-time graph of a lorry in a period of 20 seconds.



Rajah 12
Diagram 12

Hitung laju purata, dalam ms^{-1} , lori itu dalam tempoh 20 saat.

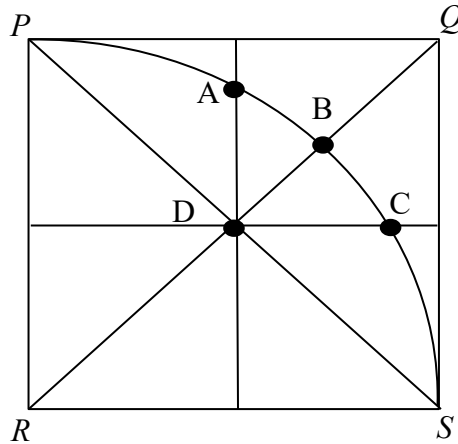
Calculate the average speed, in ms^{-1} , of the lorry in the period of 20 seconds.

- A 7.5
- B 8.0
- C 10.0
- D 20.5

- 35 Rajah 13 menunjukkan segiempat sama $PQRS$. X dan Y ialah dua titik yang bergerak dalam segiempat sama itu. Titik X sentiasa berjarak sama dari titik P dan titik R . Titik Y sentiasa bergerak dengan keadaan $RY = RP$.

Diagram 13 shows a square $PQRS$. X and Y are two moving points in the square.

Point X is always equidistant from point P and point R . Point Y is always moving with condition $RY = RP$.



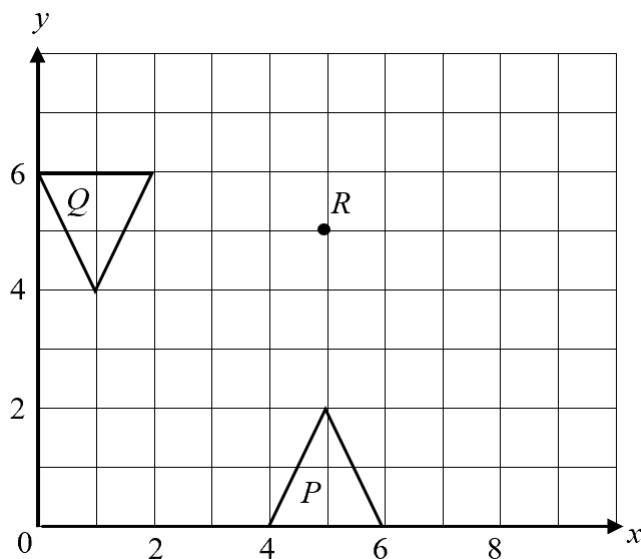
Rajah 13
Diagram 13

Antara titik **A**, **B**, **C** dan **D**, yang manakah titik persilangan bagi lokus X dan lokus Y ?

*Which of the points, **A**, **B**, **C** and **D**, is the point of intersection of locus of X and locus of Y ?*

36 Rajah 14 menunjukkan dua segi tiga P dan Q yang dilukis pada suatu satah Cartes.

Diagram 14 shows two triangles P and Q drawn in a Cartesian plane.



Rajah 14
Diagram 14

P ialah imej bagi Q di bawah suatu transformasi. Cari koordinat imej bagi titik R di bawah transformasi yang sama.

P is the image of Q under a transformation. Find the coordinates of the image of point R under the same transformation.

- A (1, 1)
- B (1, 5)
- C (3, 3)
- D (5, 1)

- 37 Rajah 15 menunjukkan skor yang diperoleh seorang peserta dalam suatu kuiz.

Diagram 15 shows the scores obtained by a participant in a quiz.

11, 18, 17, 14, 15, 12, 13, 12

Rajah 15

Diagram 15

Tentukan julat antara kuartil bagi skor peserta tersebut.

Determine the interquartile range for the participant's score.

- A 3
 B 4
 C 5
 D 9
- 38 Jadual 3 menunjukkan jisim bagi 20 orang murid.

Table 3 shows the mass of 20 pupils.

Jisim (kg) <i>Mass (kg)</i>	41 – 45	46 – 50	51 – 55	56 – 60	61 – 65	66 – 70
Bilangan murid <i>Number of pupils</i>	1	3	5	7	2	2

Jadual 3

Table 3

Diberi min jisim ialah 56.0kg, hitung varians bagi data tersebut.

Given the mass mean is 56.0kg, calculate the variance of the following data.

- A 38
 B 39
 C 40
 D 41

39 Diberi bahawa M ialah matriks 2×2 dan $M^{-1} = \frac{1}{-1(3) - 2(-6)} \begin{pmatrix} p & -2 \\ q & -1 \end{pmatrix}$.

It is given that M is 2×2 matrix and $M^{-1} = \frac{1}{-1(3) - 2(-6)} \begin{pmatrix} p & -2 \\ q & -1 \end{pmatrix}$.

Cari nilai p dan nilai q .

Find the value of p and value of q .

A $p = 3, q = 6$

B $p = -3, q = 6$

C $p = 3, q = -6$

D $p = -3, q = -6$

40 Diberi $\begin{pmatrix} 13 & 0 \\ 6 & -5 \end{pmatrix} - 2M = 3 \begin{pmatrix} 1 & -\frac{2}{3} \\ 2 & -3 \end{pmatrix}$.

Given $\begin{pmatrix} 13 & 0 \\ 6 & -5 \end{pmatrix} - 2M = 3 \begin{pmatrix} 1 & -\frac{2}{3} \\ 2 & -3 \end{pmatrix}$.

Cari matriks M .

Find matrix M .

A $\begin{pmatrix} -5 & -1 \\ 0 & -2 \end{pmatrix}$

B $\begin{pmatrix} -5 & -1 \\ 0 & -7 \end{pmatrix}$

C $\begin{pmatrix} 5 & 1 \\ 0 & 2 \end{pmatrix}$

D $\begin{pmatrix} 8 & -1 \\ 6 & -7 \end{pmatrix}$

**KERTAS SOALAN TAMAT
END OF THE 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 diagrams provided in the questions are not drawn to scale unless stated.
7. Satu senarai rumus disediakan di halaman 2 hingga 4.
A list of formulae is provided on pages 2 to 4.
8. Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.
You may use a non-programmable scientific calculator.