SULIT

SARAWAK EDUCATION ENHANCEMENT PROGRAMME (SEEP)
TINGKATAN 5
MATEMATIK
Kertas 1
1449/1
$1\frac{1}{2}$ jam **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.

SENARAI RUMUS

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 $a^{\frac{1}{2}} = \sqrt{a}$

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

Premium = $\frac{face\ value\ of\ policy}{\text{RM } x} \times (premium\ rate\ per\ \text{RM } x)$

11 Jumlah insurans yang harus dibeli = $\begin{pmatrix}\text{Peratusan}\\ \text{ko} - \text{insurans}\end{pmatrix} \times \begin{pmatrix}\text{Nilai boleh}\\ \text{insurans harta}\end{pmatrix}$

Amount of required insurance = $\begin{pmatrix}Percentage\ of\\ co - insurance\end{pmatrix} \times \begin{pmatrix}Insurable\ value\\ of\ property\end{pmatrix}$

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 $m = -\frac{pintasan-y}{pintasan-x}$

$m = -\frac{y-intercept}{x-intercept}$

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*
$= (n - 2) \times 180°$

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

4 Luas bulatan = πj^2
Area of circle $= \pi r^2$

5 $\frac{\text{Panjang lengkok}}{2\pi j} = \frac{\theta}{360°}$
$\frac{Arc\ length}{2\pi j} = \frac{\theta}{360°}$

6 $\frac{\text{Luas sektor}}{\pi j^2} = \frac{\theta}{360°}$
$\frac{Area\ of\ sector}{\pi j^2} = \frac{\theta}{360°}$

7 Luas lelayang = $\frac{1}{2} \times$ hasil darab panjang dua pepenjuru
Area of kite = $\frac{1}{2} \times$ *product of the length of two diagonals*

8 Luas trapezium = $\frac{1}{2} \times$ hasil tambah dua sisi selari × tinggi
Area of trapezium = $\frac{1}{2} \times$ *sum of two parallel sides* × *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 × tinggi
Volume of prism = *cross sectional area* × *height*

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

14 Isi padu kon = $\frac{1}{3}\pi j^2 t$
Volume of cone = $\frac{1}{3}\pi r^2 h$

15 Isi padu sfera = $\frac{4}{3}\pi j^3$
Volume of sphere = $\frac{4}{3}\pi r^3$

16 Isi padu piramid = $\frac{1}{3} \times$ luas tapak × tinggi
Volume of pyramid = $\frac{1}{3} \times$ *base area* × *height*

17 Faktor skala, $k = \frac{PA'}{PA}$

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*, $\sigma^2 = \frac{\sum x^2}{N} - \bar{x}^2 = \frac{\sum (x-\bar{x})^2}{N}$

4 Varians / *Variance*, $\sigma^2 = \frac{\sum fx^2}{\sum f} - \bar{x}^2 = \frac{\sum f(x-\bar{x})^2}{\sum f}$

5 Sisihan piawai / *Standard deviation*, $\sigma = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2} = \sqrt{\frac{\sum (x-\bar{x})^2}{N}}$

6 Sisihan piawai / *Standard deviation*, $\sigma = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2} = \sqrt{\frac{\sum f(x-\bar{x})^2}{\sum f}}$

7 $P(A) = \frac{n(A)}{n(S)}$

8 $P(A') = 1 - P(A)$

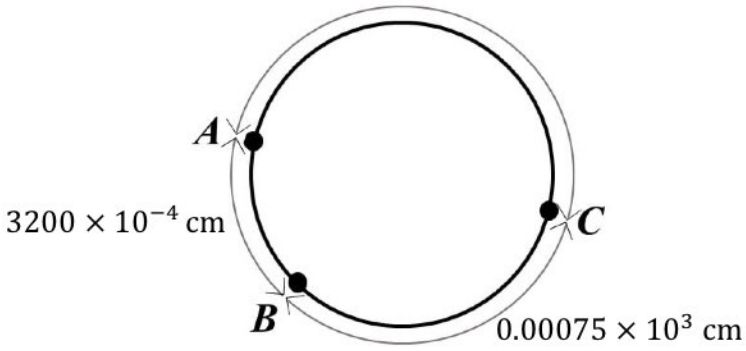
1 Harga tiket dewasa untuk menyaksikan perlawanan badminton antara Pasukan *A* dan Pasukan *B* ialah 1043_5. Apakah nilai harga tiket tersebut dalam asas 10?
The price of an adult ticket to watch the badminton match between Team A and Team B is 1043_5. *What is the value of the ticket price in base* 10?

A 143
B 146
C 148
D 155

2 Ungkapkan $\frac{2^6 \times 4^3}{8^2}$ dalam bentuk 2^n.
Express $\frac{2^6 \times 4^3}{8^2}$ *in the form of* 2^n.

A 2^4
B 2^5
C 2^6
D 2^7

3 Rajah 3 menunjukkan sebuah bulatan dengan lengkok *AB*, *BC* dan *AC*.
Diagram 3 *shows a circle with arcs AB, BC and AC*



Rajah 3 / *Diagram* 3

Diberi panjang lilitan bulatan ialah 188500×10^{-5} cm. Hitung panjang lengkok *AC*, dalam m.
Given the circumference of the circle is 188500×10^{-5} cm. *Calculate the length of arc AC*, *in* m.

A 10.15×10^{-1}
B 9.61×10^{-1}
C 8.15×10^{-3}
D 7.20×10^{-3}

4 Sebuah taman rekreasi berbentuk segi empat tepat mempunyai panjang $(x + 3)$ m dan lebar $(x - 1)$ m. Jika luas taman itu ialah 60 m², cari nilai x.
A rectangular recreation park has length $(x + 3)$ m *and width* $(x - 1)$ m. *If the area of the park is* 60 m², *find the value of* x.

A 5
B 7
C 9
D 12

5 Diberi satu fungsi kuadratik $f(x) = 2x^2 - 8x + 5$, tentukan titik minimum bagi fungsi tersebut.
Given a quadratic function $f(x) = 2x^2 - 8x + 5$, *determine the minimum point of the function.*

A $(-2, -3)$
B $(-2, 3)$
C $(2, -5)$
D $(2, -3)$

6 Antara pernyataan majmuk berikut, yang manakah adalah **benar**?
Which of the following compound statements is ***true****?*

A $2^3 = 6$ atau $\sqrt{81} = 9$.
$2^3 = 6$ *or* $\sqrt{81} = 9$.
B $5^0 = 0$ atau $\sqrt[3]{-8} = 2$.
$5^0 = 0$ *or* $\sqrt[3]{-8} = 2$.
C $2^{-3} = -8$ atau $3^2 = 6$.
$2^{-3} = -8$ *or* $3^2 = 6$.
D $\sqrt{2}$ ialah nombor nisbah atau $5^2 = 10$.
$\sqrt{2}$ *is a rational number or* $5^2 = 10$.

7 Diberi satu implikasi berikut:
Given an implication as follow:

Jika x ialah nombor perdana, maka x hanya mempunyai dua faktor. *If x is a prime number, then x has only two factors.*

Tentukan akas bagi implikasi seperti berikut.
Determine the converse of the implication.

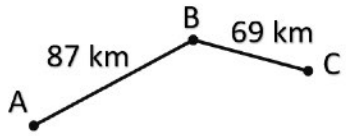
A Jika x tidak mempunyai dua faktor, maka x bukan nombor perdana.
If x does not have two factors, then x is not a prime number.

B Jika x hanya mempunyai dua faktor, maka x ialah nombor perdana.
If x has only two factors, then x is a prime number.

C Jika x bukan nombor perdana, maka x tidak mempunyai dua faktor.
If x is not a prime number, then x does not have two factors.

D Jika x hanya mempunyai dua faktor, maka x bukan nombor perdana.
If x has only two factors, then x is not a prime number.

8 Rajah 8 menunjukkan jarak bagi pergerakan Susan dari Bandar A ke Bandar C. Susan bergerak dengan kadar 45 km dalam masa setengah jam. Diberi nisbah kelajuan Susan kepada kelajuan John ialah 3 : 4.
Diagram 8 *shows the distance travelled by Susan from Town* A *to Town* C. *Susan travels at a rate of* 45 km *in half an hour. Given that the ratio of Susan's speed to John's speed is* 3 : 4.



Rajah 8 / *Diagram* 8

Hitung masa yang diperlukan untuk John bergerak dari Bandar A ke Bandar C.
Calculate the time required for John to travel from Town A *to Town* C.

A 1 jam 3 minit
1 *hour* 3 *minutes*

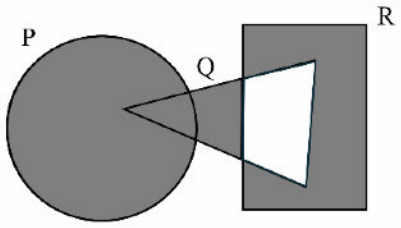
B 1 jam 8 minit
1 *hour* 8 *minutes*

C 1 jam 18 minit
1 *hour* 18 *minutes*

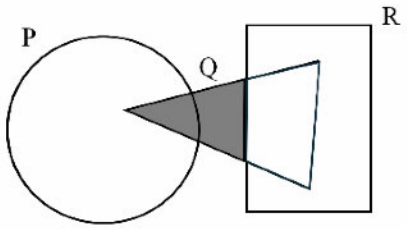
D 1 jam 30 minit
1 *hour* 30 *minutes*

9 Diberi set semesta, $\xi = P \cup Q \cup R$. Antara yang berikut, yang manakah mewakili kawasan berlorek $(P \cup Q) \cap R'$?
Given the universal set, $\xi = P \cup Q \cup R$. *Which of the following represents the shaded region* $(P \cup Q) \cap R'$?

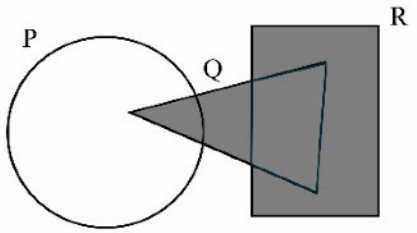
A



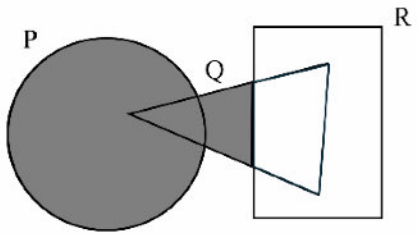
B



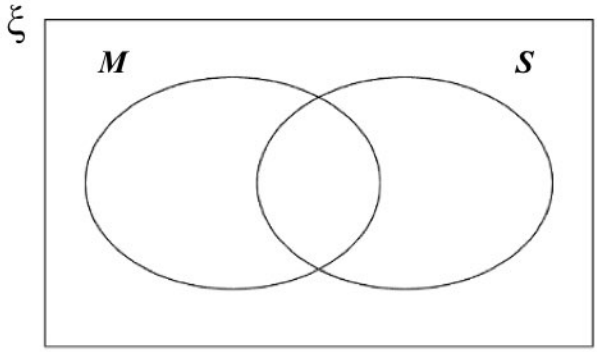
C



D



10 Rajah 10 menunjukkan gambar rajah Venn dengan set semesta, ξ = {murid tingkatan lima}, set M = {murid mengambil Matematik} dan set S = {murid mengambil Sains}.
Diagram 10 *shows a Venn diagram with universal set,* ξ = {*form five students*}, *set* M = {*students taking Mathematics*} *and set* S = {*students taking Science*}.



Rajah 10 / *Diagram* 10

Diberi $n(\xi) = 50$, $n(M) = 30$, $n(S) = 25$ dan $n(M \cap S) = 12$. Cari bilangan murid yang **tidak** mengambil mana-mana mata pelajaran tersebut.
Given $n(\xi) = 50$, $n(M) = 30$, $n(S) = 25$ *and* $n(M \cap S) = 12$. *Find the number of students who* ***do not*** *take any of those subjects.*

A 7
B 13
C 18
D 43

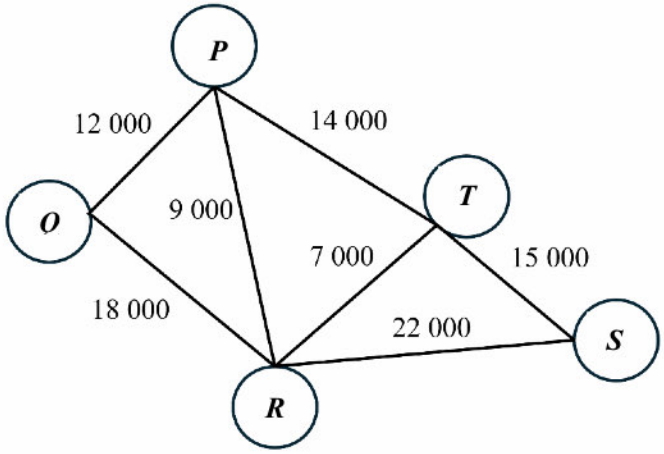
11 Satu rangkaian paip bekalan air yang menyambungkan lima kawasan perumahan P, Q, R, S, dan T dimodelkan. Graf tersebut mempunyai ciri-ciri berikut:
A water supply pipe network connecting five residential areas P, Q, R, S, and T is modelled. The graph has the following characteristics:

- Satu gelung di kawasan P.
  A loop at area P.
- Berbilang tepi yang menyambungkan kawasan Q dan R.
  Multiple edges connecting area Q and R.
- Tepi yang menyambungkan P ke Q, R ke S, S ke T dan T ke P.
  Edges connecting P to Q, R to S, S to T and T to P.

Berdasarkan maklumat di atas, tentukan bilangan tepi, $n(E)$ dan jumlah darjah, $\sum d(v)$, bagi graf rangkaian paip tersebut?
Based on the information above, determine the number of edges, $n(E)$ *and the sum of degrees,* $\sum d(v)$*, for the pipe network graph*?

A $n(E) = 6, \quad \sum d(v) = 12$
B $n(E) = 7, \quad \sum d(v) = 14$
C $n(E) = 7, \quad \sum d(v) = 7$
D $n(E) = 8, \quad \sum d(v) = 14$

12 Rajah 12 menunjukkan rangkaian kabel elektrik yang menghubungkan lima sub-stesen, *P*, *Q*, *R*, *S* dan *T*. Pemberat pada setiap tepi mewakili kos pemasangan kabel, dalam RM.
Diagram 12 *shows an electrical cable network connecting five sub-stations, P, Q, R, S, and T. The weight on each edge represents the installation cost, in* RM.

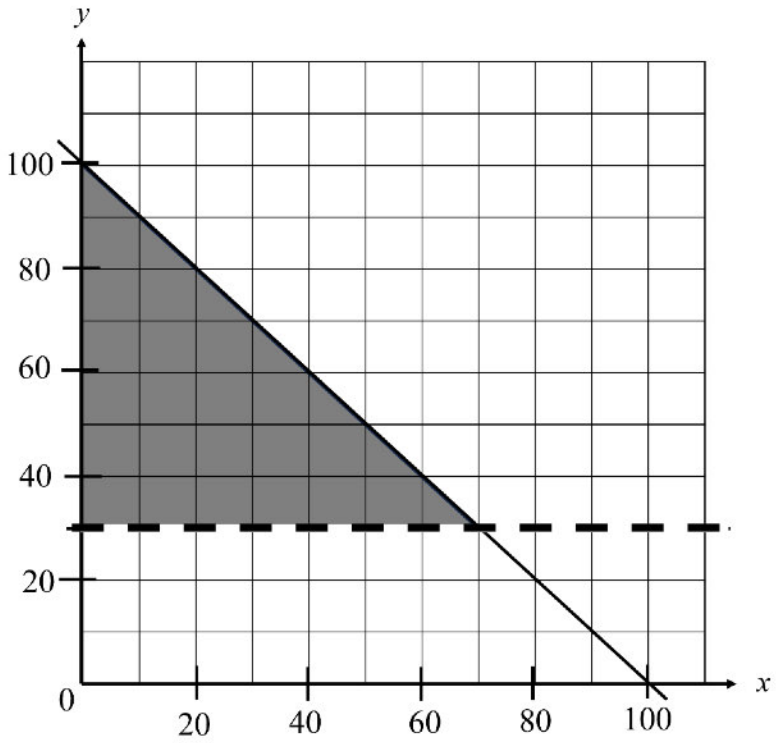


Rajah 12 / *Diagram* 12

Hitung kos minimum untuk menyalurkan elektrik ke semua sub-stesen.
Calculate the minimum cost to supply electric to all sub-stations.

A RM43 000
B RM45 000
C RM48 000
D RM50 000

13 Rajah 13 menunjukkan kawasan berlorek yang dibatasi oleh dua garis sempadan pada satah Cartes. Kawasan tersebut mewakili had bilangan tiket dewasa, x, dan tiket kanak-kanak, y, bagi sebuah konsert.
Diagram 13 *shows a shaded region bounded by two boundary lines on a Cartesian plane. The region represents the limit of the number of adult tickets* x, *and child tickets,* y, *for a concert.*

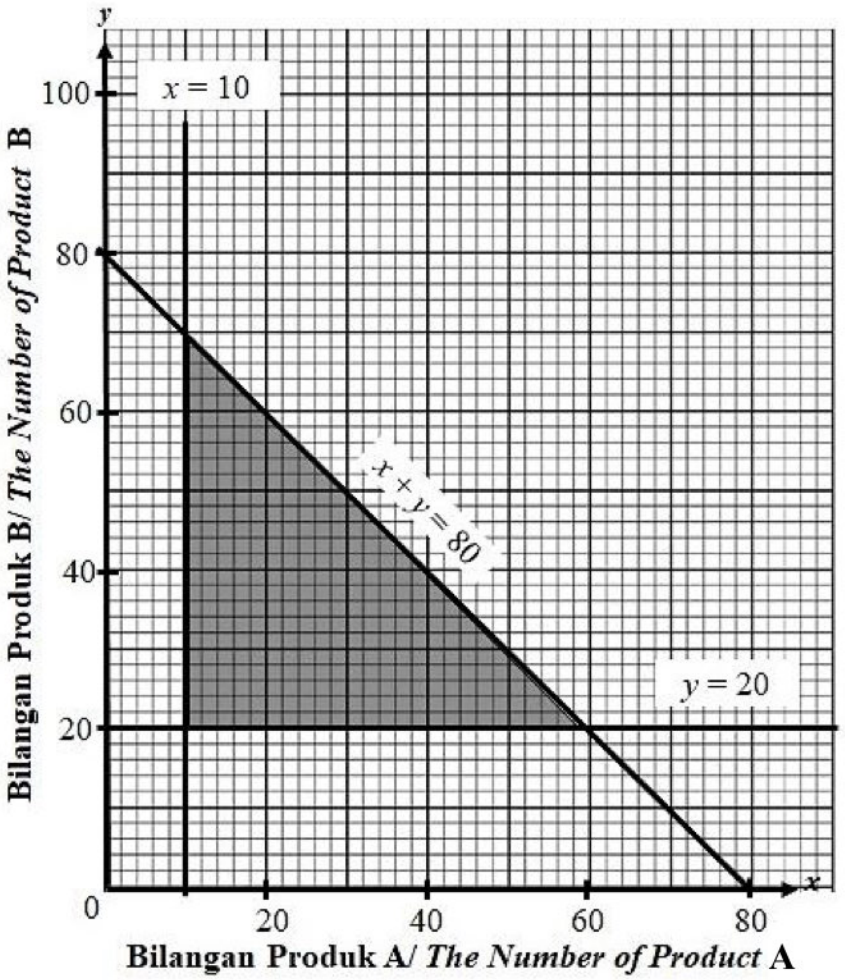


Rajah 13 / *Diagram* 13

Antara sistem ketaksamaan berikut, yang manakah mewakili kawasan berlorek tersebut?
Which of the following systems of inequalities represents the shaded region?

A $x + y \leq 100, y \geq 30$
B $x + y \geq 100, y \geq 30$
C $x + y \leq 100, y > 30$
D $x + y \geq 100, y \leq 30$

14 Rajah 14 menunjukkan rantau berlorek yang memuaskan tiga ketaksamaan linear bagi pengeluaran x unit Produk A dan y unit Produk B di sebuah kilang.
Diagram 14 *shows the shaded region that satisfies three linear inequalities for the production of* x *units of Product* A *and* y *units of Product* B *in a factory*.

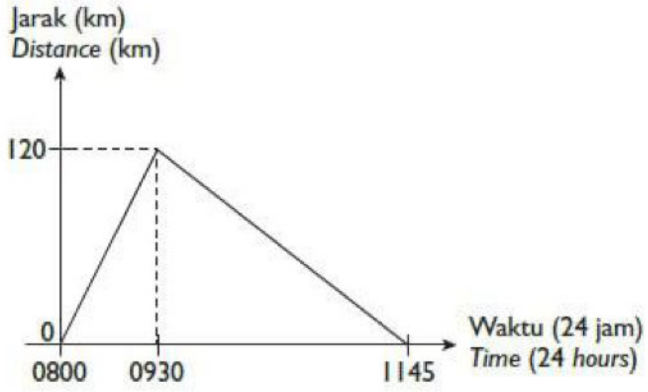


Rajah 14 / *Diagram* 14

Berdasarkan graf, jika kilang tersebut mengeluarkan 30 unit Produk B, berapakah bilangan maksimum Produk A yang boleh dikeluarkan?
Based on the graph, if the factory produces 30 *units of Product* B, *what is the maximum number of Product* A *that can be produced*?

A 10
B 50
C 60
D 80

15 Rajah 15 menunjukkan graf jarak-masa bagi perjalanan seorang penghantar makanan bermotosikal dari jam 0800 sehingga jam 1145.
Diagram 15 *shows the distance-time graph for the journey of a food delivery rider on a motorcycle from* 0800 *hour until* 1145 *hour*.



Rajah 15 / *Diagram* 15

Hitung purata laju, dalam km/j, untuk motosikal tersebut bagi keseluruhan perjalanan.
Calculate the average speed, in km/h*, of the motorcycle for the whole journey.*

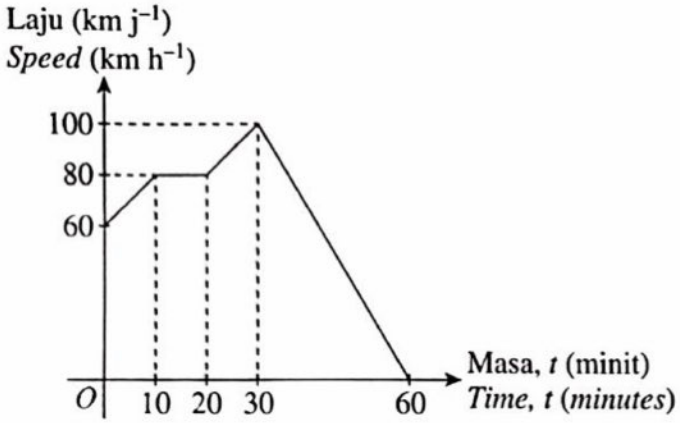
A 34.8 km/j
34.8 km/h

B 69.6 km/j
69.6 km/h

C 32.0 km/j
32.0 km/h

D 64.0 km/j
64.0 km/h

16 Rajah 16 menunjukkan graf laju-masa bagi gerakan sebuah teksi dalam tempoh 60 minit.
Diagram 16 *shows the speed-time graph of the motion of a taxi for a period of* 60 *minutes*.



Rajah 16 / *Diagram* 16

Antara berikut, yang manakah benar?
Which of the following is true?

	Nyahpecutan (km j^{-2}) ***Deceleration*** **(km h^{-2})**	**Jarak yang dilalui dalam tempoh 30 minit terakhir (km)** ***Distance travelled in the last*** **30 *minutes* (km)**
A	100	25
B	100	50
C	200	25
D	200	50

17 Diberi satu fungsi kuadratik $f(x) = \frac{1}{2}x^2 + 3x - 3$, hitung nilai-nilai yang mungkin bagi x apabila $y = 10.5$.
Given a quadratic function $y = \frac{1}{2}x^2 + 3x - 3$, *calculate the possible values of* x *when* $y = 10.5$.

A $x = 0.8, \quad x = -6.8$
B $x = 3, \quad x = -9$
C $x = 3.4, \quad x = -2.4$
D $x = 4, \quad x = -5$

18 Diberi satu set data mengandungi lima nombor, iaitu $2x$, $4x$, $6x$, $8x$ dan $10x$. Min bagi set data tersebut ialah 6. Hitung sisihan piawai bagi data tersebut.
Given that a set of data consisting five numbers, that are $2x$, $4x$, $6x$, $8x$ *and* $10x$. *The mean for the set of data is* 6. *Calculate the standard deviation for the set of data*.

A 2.828
B 2.882
C 6.164
D 6.557

19 Sebiji dadu adil dilambung dua kali berturut-turut. Jika hasil tambah skor yang diperoleh daripada kedua-dua dadu tersebut diwakili oleh X, hitung kebarangkalian bahawa $X \leq 3$ atau $X \geq 10$.
Two fair dices are rolled consecutively. If the sum of the scores obtained from the two dices is represented by X, *calculate the probability that* $X \leq 3$ *or* $X \geq 10$.

A $\frac{1}{4}$
B $\frac{1}{3}$
C $\frac{1}{2}$
D $\frac{3}{4}$

20 Sebuah kotak mengandungi 4 biji guli merah, 2 biji guli kuning dan 3 biji guli biru. Dua biji guli dipilih secara rawak daripada kotak itu, satu demi satu tanpa pemulangan. Hitung kebarangkalian bahawa kedua-dua guli yang dipilih berwarna merah.
A box contains 4 *red marbles*, 2 *yellow marbles and* 3 *blue marbles*. *Two marbles are chosen at random from the box*, *one by one without replacement*. *Calculate the probability that both marbles selected are red*.

A $\frac{1}{36}$

B $\frac{1}{12}$

C $\frac{1}{9}$

D $\frac{1}{6}$

21 Bank OBBOR menawarkan kadar faedah 5% setahun untuk simpanan dalam akaun simpanan tetap. Koperasi SK Tobovon menyimpan RM20 000 pada awal tahun 2024. Hitung jumlah faedah yang diperolehi oleh Koperasi SK Tobovon pada akhir tahun 2026 jika faedah dikompaun tiga bulan sekali.
Bank OBBOR offers an interest rate of 5% *per annum for savings in a fixed deposit account. Koperasi SK Tobovon deposits* RM20 000 *at the beginning of the year* 2024. *Calculate the total interest earned by the Koperasi SK Tobovon at the end of the year* 2026 *if the interest is compounded every three months.*

A RM3 207.98
B RM3 215.09
C RM8 225.50
D RM9 000.01

22 Pendapatan bercukai Rusydi pada tahun 2025 ialah RM35 850. Beliau telah membayar zakat sebanyak RM200 pada tahun tersebut. Jadual 22 menunjukkan kadar cukai pendapatan individu untuk pendapatan bercukai antara RM35 001 dengan RM50 000.
The chargeable income of Rusydi in year 2025 *was* RM35 850. *He paid zakat amounting to* RM200 *in that year. Table* 22 *shows individual income tax rate for chargeable income between* RM35 001 *and* RM50 000.

Banjaran pendapatan bercukai *Chargeable income* (RM)	Pengiraan *Calculations* (RM)	Kadar *Rate* (%)	Cukai *Tax* (RM)
35 001 – 50 000	35 000 *pertama* *On the first* 35 000 15 000 *berikutnya* *Next* 15 000	 8	600 1 200

Jadual 22 / *Table* 22

Hitung cukai pendapatan yang perlu dibayar oleh Rusydi.
Calculate the income tax to be paid by Rusydi.

A RM468.00
B RM652.00
C RM668.00
D RM868.00

23 Venice ingin mengambil perlindungan insurans untuk keluarganya dan aset peribadinya. Beliau telah memilih tiga jenis polisi dengan manfaat yang berbeza seperti berikut:
Venice wants to take out insurance coverage for her family and personal assets. She has chosen three types of policies with different benefits as follows:

Polisi *X* ***Policy X***	:	Memberi pampasan jika berlaku kematian atau hilang upaya kekal. *Provides compensation in the event of death or permanent disability.*
Polisi *Y* ***Policy Y***	:	Menanggung kos rawatan hospital dan pembedahan yang semakin meningkat. *Covers the increasing costs of hospital treatment and surgery.*
Polisi *Z* ***Policy Z***	:	Melindungi kerugian atau kerosakan kenderaan akibat kemalangan, kebakaran atau kecurian. *Covers loss or damage to a vehicle due to an accident, fire or theft.*

Antara berikut, yang manakah padanan yang betul bagi jenis insurans yang dipilih oleh Venice?
Which of the following is the correct match for the type of insurance purchased by Venice?

	Polisi *X* ***Policy X***	**Polisi *Y*** ***Policy Y***	**Polisi *Z*** ***Policy Z***
A	Insurans hayat *Life insurance*	Insurans motor *Motor insurance*	Insurans perubatan dan kesihatan *Medical and health insurance*
B	Insurans perubatan dan kesihatan *Medical and health insurance*	Insurans hayat *Life insurance*	Insurans motor *Motor insurance*
C	Insurans motor *Motor insurance*	Insurans perubatan dan kesihatan *Medical and health insurance*	Insurans hayat *Life insurance*
D	Insurans hayat *Life insurance*	Insurans perubatan dan kesihatan *Medical and health insurance*	Insurans motor *Motor insurance*

24 Rajah 24 menunjukkan satu pola nombor.
Diagram 24 *shows a number pattern.*

0.35	,	1.05	,	3.15	,	x	,	y	,	85.05	,	…

Rajah 24 / *Diagram* 24

Hitung $1.05 + 3.15 + x + y$.
Calculate $1.05 + 3.15 + x + y$.

A 37.80
B 42.00
C 42.35
D 89.60

25 Dalam sebuah kilang pemprosesan makanan, Itamar mendapati bahawa bilangan kotak makanan, P berubah secara songsang dengan punca kuasa dua bilangan pekerja, Q dan secara langsung dengan kuasa dua bahan mentah, R. Cari hubungan antara P, Q dan R.
In a food processing factory, Itamar found that the number of food boxes, P, varies inversely with the square root of the number of workers, Q, and directly with the square of the raw materials, R. Find the relationship between P, Q and R.

A $P \propto \frac{Q^2}{\sqrt{R}}$

B $P \propto \frac{\sqrt{R}}{Q^2}$

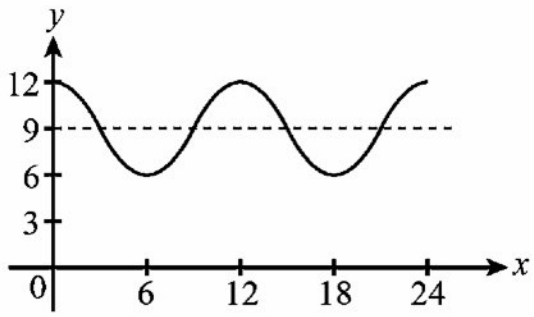
C $P \propto \frac{R^2}{\sqrt{Q}}$

D $P \propto \frac{\sqrt{Q}}{R^2}$

26 Diberi bahawa matriks P dengan peringkat $m \times 3$ dan matriks Q dengan peringkat $3 \times n$. Jika peringkat hasil darab matriks P dan matriks Q ialah 1×2. Tentukan nilai m dan n.
Given that the matrix P is of order $m \times 3$ *and matrix Q is of order* $3 \times n$. *If the order of the product of matrix P and matrix Q is* 1×2. *Determine the values of m and n.*

A $m = 1, n = 2$
B $m = 1, n = 3$
C $m = 2, n = 1$
D $m = 2, n = 3$

27 Rajah 27 menunjukkan graf fungsi $y = a \cos bx + c$.
Diagram 27 shows the graph of function $y = a \cos bx + c$.



Rajah 27 / *Diagram 27*

Cari nilai *a, b* dan *c*.
Find the values of a, b and c.

A $a = 3, b = 24, c = 9$
B $a = 3, b = 30, c = 9$
C $a = 4, b = 24, c = 12$
D $a = 4, b = 30, c = 12$

28 Jadual 28 menunjukkan bilangan meja dan kerusi yang dihasilkan oleh Kilang Perabot Berjaya pada bulan Januari dan Februari.
Table 28 *shows the number of tables and chairs produced by Kilang Perabot Berjaya in January and February.*

Bulan *Month*	Bilangan meja yang dihasilkan *Number of tables produced*	Bilangan kerusi yang dihasilkan *Number of chairs produced*
Januari *January*	4 100	5 000
Februari *February*	4 750	4 300

Jadual 28 / *Table* 28

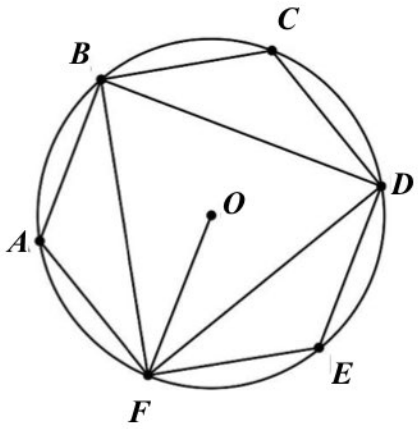
Jumlah kos penghasilan meja dan kerusi pada Januari dan Februari masing-masing ialah RM428 000 dan RM466 000. Maklumat bilangan dan kos penghasilan tersebut diwakili oleh persamaan matriks berikut, di mana x mewakili kos penghasilan sebuah meja dan y mewakili kos penghasilan sebuah kerusi.
The total production cost of tables and chairs in January and February is RM428 000 *and* RM466 000 *respectively. The information regarding the number and production costs is represented by the following matrix equation, where x represents the production cost of a table and y represents the production cost of a chair.*

$$\begin{bmatrix} 4100 & 5000 \\ 4750 & 4300 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 428\,000 \\ 466\,000 \end{bmatrix}$$

Hitung nilai x dan nilai y.
Calculate the values of x and y.

A $x = 24, y = 75$
B $x = 75, y = 24$
C $x = 20, y = 80$
D $x = 80, y = 20$

29 Rajah 29 menunjukkan sebuah bulatan, berpusat di *O* yang mengandungi sebuah heksagon sekata *ABCDEF* dan sebuah segi tiga sama sisi *BDF*, dengan semua bucu terletak pada lilitan bulatan tersebut.
Diagram 29 *shows a circle, centered at O containing a regular hexagon ABCDEF and an equilateral triangle BDF, where all the vertices lie on the circumference of the circle.*

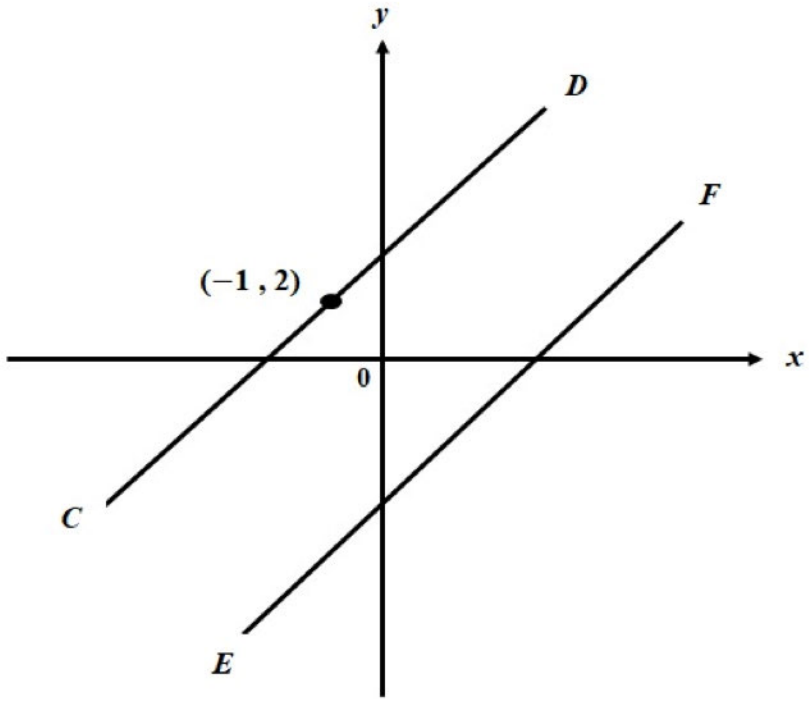


Rajah 29 / *Diagram* 29

Hitungkan nilai untuk $\angle BFO + \angle CDF$.
Calculate the value of $\angle BFO + \angle CDF$.

A 100°
B 120°
C 150°
D 190°

30 Rajah 30 menunjukkan dua garis lurus *CD* dan *EF* yang dilukis pada suatu satah Cartes. Garis lurus *CD* melalui titik (–1, 2) dan selari dengan garis lurus *EF*. Diberi persamaan garis lurus *EF* ialah $y - x = -1$.
Diagram 30 *shows two straight lines CD and EF, drawn on a Cartesian plane. The straight line CD passes through the point* (–1, 2) *and parallel to line EF. Given that the equation of the straight line EF is* $y - x = -1$.



Rajah 30 / *Diagram* 30

Cari persamaan garis lurus *CD*.
Find the equation of the straight line CD.

A $y = -x + 3$
B $y = -x - 3$
C $y = x + 3$
D $y = x - 3$

31 Ringkaskan:
Simplify:

$$(3q^3 + pq^2) \times \frac{p^2}{q^2(p + 3q)}$$

A $\frac{p}{q}$

B p^2

C $\frac{p^2}{q}$

D $\frac{p}{q^2}$

32 Sofia membeli saham yang bernilai RM25 000. Selepas 3 tahun, dia menjual semua saham tersebut pada harga RM30 000. Jumlah dividen yang diterimanya sepanjang 3 tahun itu ialah RM1 200. Hitung nilai pulangan pelaburan bagi Sofia.
Sofia bought shares worth RM25 000. *After* 3 *years, she sold all the shares at* RM30 000. *The total dividends she received throughout* 3 *years is* RM1 200. *Calculate the return on investment for Sofia.*

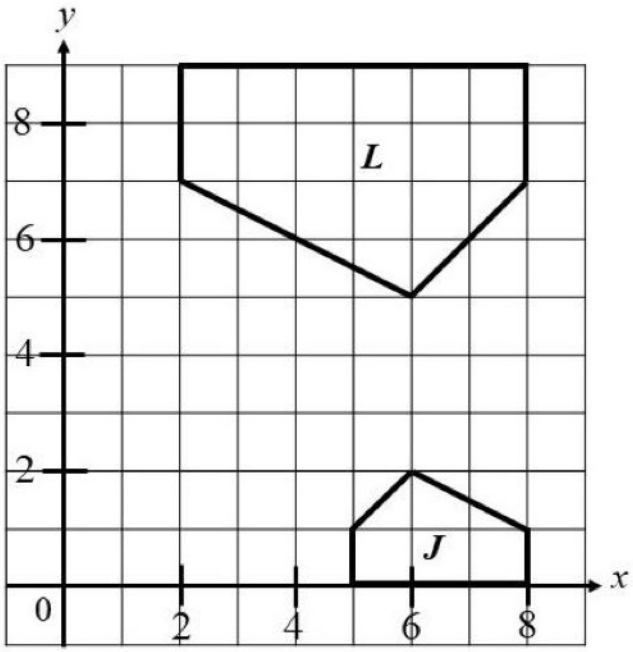
A 15.0%

B 20.0%

C 20.7%

D 24.8%

33 Rajah 33 menunjukkan dua buah pentagon, *J* dan *L* yang dilukis pada satah Cartes. Pentagon *L* ialah imej bagi pentagon *J* di bawah suatu pembesaran
Diagram 33 *shows two pentagons, L and J drawn on square grids. Pentagon L is the image of pentagon J under an enlargement.*

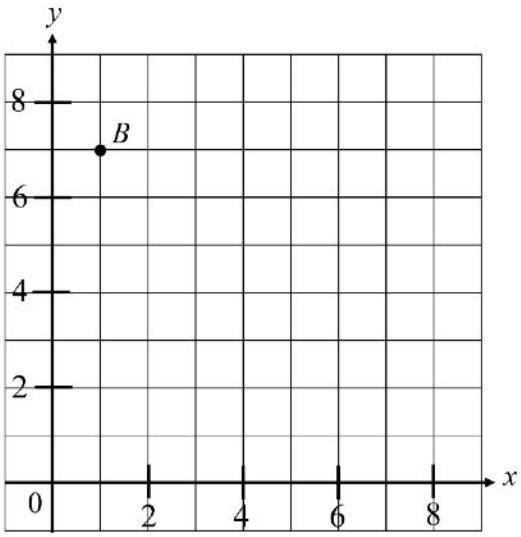


Rajah 33 / *Diagram* 33

Hitung faktor skala bagi pembesaran tersebut.
Calculate the scale factor of the enlargement.

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

34 Rajah 34 menunjukkan titik *B* yang dilukis pada satah Cartes.
Diagram 34 *shows Point B that is drawn on a Cartesian plane.*



Rajah 34 / *Diagram* 34

Diberi bahawa:
Given that:

P = Putaran 90° ikut arah jam pada pusat (3, 4)
Clockwise rotation of 90° *about the centre* (3, 4)
Q = Pantulan pada garis $y = 3$
Reflection in the line $y = 3$

Huraikan selengkapnya satu penjelmaan tunggal yang memetakan titik *B* kepada imejnya, setara dengan gabungan transformasi **QP**.
Describe in full a single transformation which mapped Point B to its image, equivalent to the combined transformation **QP.**

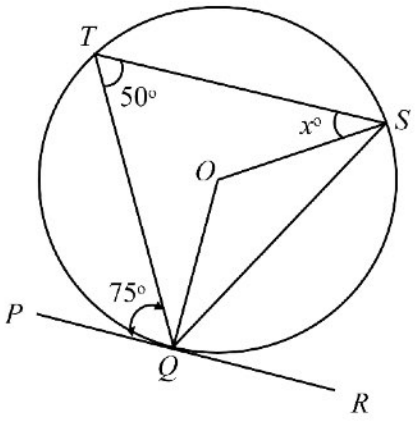
A Translasi $\begin{pmatrix} 5 \\ -7 \end{pmatrix}$ / *Translation* $\begin{pmatrix} 5 \\ -7 \end{pmatrix}$

B Translasi $\begin{pmatrix} -7 \\ 5 \end{pmatrix}$ / *Translation* $\begin{pmatrix} -7 \\ 5 \end{pmatrix}$

C Translasi $\begin{pmatrix} -3 \\ -1 \end{pmatrix}$ / *Translation* $\begin{pmatrix} -3 \\ -1 \end{pmatrix}$

D Translasi $\begin{pmatrix} -1 \\ -3 \end{pmatrix}$ / *Translation* $\begin{pmatrix} -1 \\ -3 \end{pmatrix}$

35 Dalam Rajah 35, *PQR* ialah tangen kepada bulatan *TQS* berpusat *O*, di *Q*.
In Diagram 35*, PQR is the tangent to the circle TQS with centre O, at Q.*

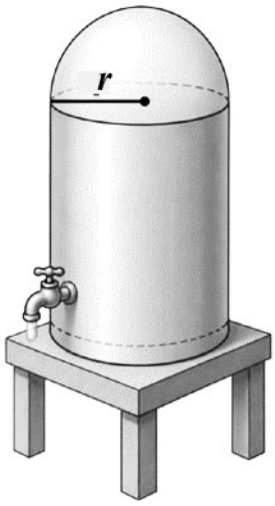


Rajah 35 / *Diagram* 35

Cari nilai *x*.
Find the value of x.

A 15°
B 25°
C 35°
D 75°

36 Peter ingin memasang sebuah tangki air di halaman rumahnya untuk menyimpan air bagi tujuan kecemasan. Tangki air tersebut adalah gabungan silinder dan hemisfera seperti yang ditunjukkan pada Rajah 36.
Peter wants to install a water tank in his yard to store water for emergency purposes. The water tank is a combination of cylinder and hemisphere as shown in Diagram 36.

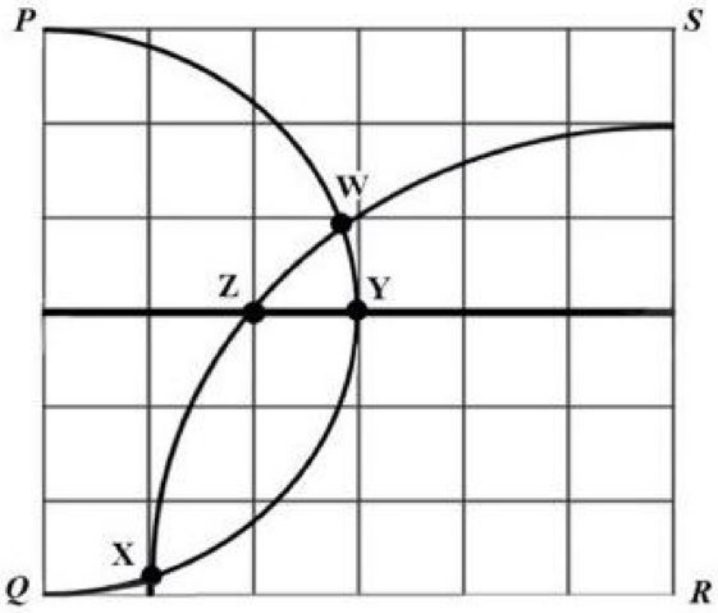


Rajah 36 / *Diagram* 36

Diberi bahawa jejari tangki air, r = 7 cm dan tinggi bahagian silinder ialah 20 cm. Hitung jumlah isipadu tangki air tersebut.
$\left[\text{Gunakan } \pi = \frac{22}{7}\right]$
Given that the radius of the water tank, r = 7 cm *and the height of the cylinder part is* 20 cm. *Calculate the total volume of the water tank.*
$\left[\textit{Use } \pi = \frac{22}{7}\right]$

A 3 080.67 cm^3
B 3 590.67 cm^3
C 3 798.67 cm^3
D 4 312.67 cm^3

37 Rajah 37 menunjukkan maklumat bagi lokus *E* dan lokus *F*. Diberi bahawa lokus *E* ialah satu titik yang bergerak dengan keadaan *EP* = *EQ* dan lokus *F* ialah satu titik yang bergerak dengan jarak tetap 5 unit dari titik *R*.
Diagram 37 *shows information for locus E and locus F. Given that Locus E is a point that moves with the condition EP = EQ* and l*ocus F is a point that moves at a constant distance of* 5 *units from point R.*

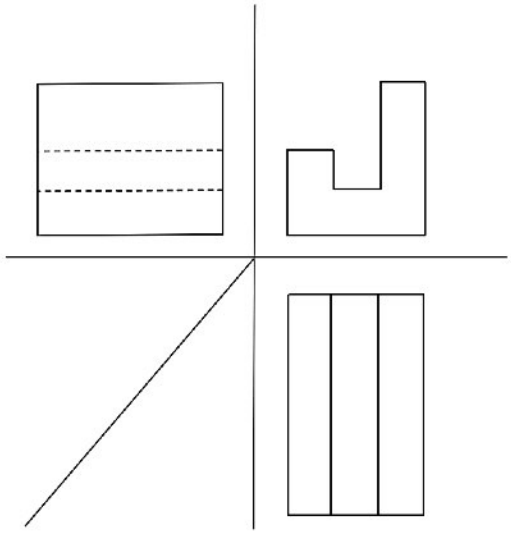


Rajah 37 / *Diagram* 37

Antara berikut, yang manakah merupakan titik persilangan bagi lokus *E* dan lokus *F*?
Which of the following is the point of intersection of locus E and locus F?

A W
B X
C Y
D Z

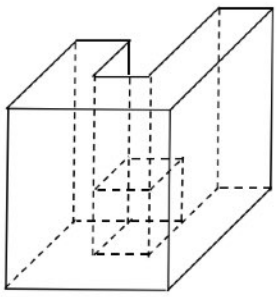
38 Rajah 38 menunjukkan pelan, dongakan hadapan dan dongakan sisi bagi sebuah pepejal.
Diagram 38 *shows the plan, front elevation and side elevation of a solid.*



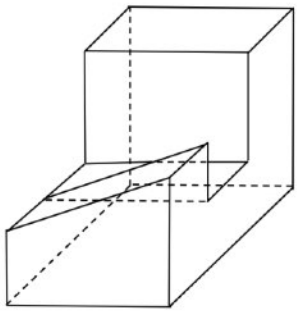
Rajah 38 / *Diagram* 38

Antara berikut, yang manakah menunjukkan pepejal yang betul berdasarkan Rajah 38?
Which of the following shows the correct solid based on Diagram 38?

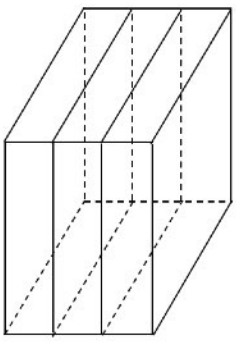
A



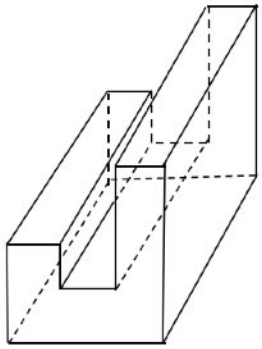
B



C



D



39 Sebuah pelan bilik darjah yang berbentuk segi empat tepat dilukis dengan menggunakan skala 1 : 500. Panjang bilik darjah tersebut pada pelan itu ialah 4 cm. Hitung panjang sebenar bilik darjah tersebut.
A rectangular classroom plan is drawn using a scale of 1 : 500. *The length of the classroom on the plan is* 4 cm. *Calculate the actual length of the classroom.*

A 1 600 cm
B 1 800 cm
C 2 000 cm
D 2 300 cm

40 Diberi bahawa $t = 2\pi\sqrt{\frac{h}{g}}$. Ungkapkan h dalam sebutan t, π dan g.

Given that $t = 2\pi\sqrt{\frac{h}{g}}$ *. Express* h *in terms of* t, π *and* g.

A $h = \frac{t^2 g}{4\pi^2}$

B $h = \frac{tg}{2\pi}$

C $h = \frac{t^2 g}{2\pi}$

D $h = \left(\frac{tg}{2\pi}\right)^2$

KERTAS PEPERIKSAAN TAMAT