

Jawab semua soalan.

- 1 Diberi bahawa $0.00086 = p \times 10^q$ dengan keadaan $p \times 10^q$ ialah suatu nombor dalam bentuk piawai.

Nyatakan nilai p dan nilai q .

It is given that $0.00086 = p \times 10^q$ such that $p \times 10^q$ is a number in the standard form.

State the value of p and of q .

- A $p = 8.6, q = 4$
 B $p = 8.6, q = -4$
 C $p = 86, q = 5$
 D $p = 86, q = -5$

- 2 Faktorkan:

Factorise:

$$-2x^2 + 11x - 5$$

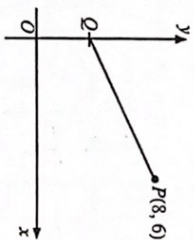
- A $(-x + 1)(2x - 5)$
 B $(-x - 1)(2x + 5)$
 C $(-2x - 1)(x + 5)$
 D $(-2x + 1)(x - 5)$

- 3 Nyatakan nilai dalam asas sepuluh bagi digit yang bergaris, dalam nombor $101\overline{1}01_x$.

State the value in base ten for the underlined digit, in number $101\overline{1}01_x$.

- A 1
 B 2
 C 4
 D 8

- 4 Rajah 1 menunjukkan garis lurus PQ dilukis pada satu satah Cartes. Diagram 1 shows a straight line PQ drawn on a Cartesian plane.



Rajah 1
 Diagram 1

Diberi bahawa jarak OQ ialah 4 unit.
 Cari kecerunan PQ .

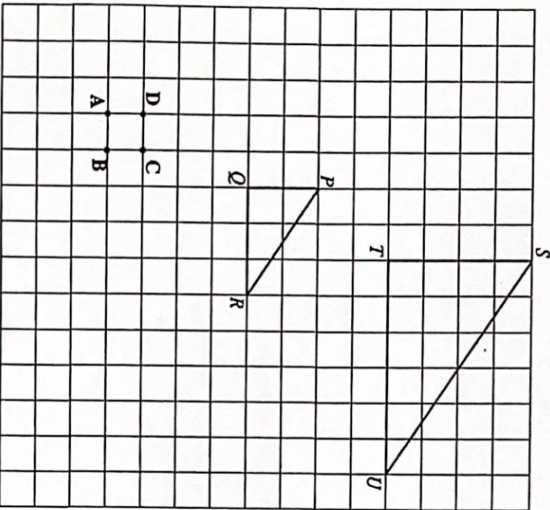
It is given that the distance of OQ is 4 units.

Find the gradient of PQ .

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

- 5 Rajah 2 menunjukkan dua buah segi tiga PQR dan STU yang dilukis pada grid segi empat sama.

Diagram 2 shows two triangles PQR and STU drawn on square grids.



Rajah 2
Diagram 2

Segi tiga STU ialah imej bagi segi tiga PQR di bawah suatu pembesaran.

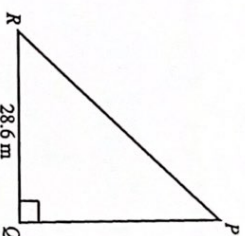
Antara titik A, B, C dan D, yang manakah merupakan pusat pembesaran itu?

Triangle STU is the image of triangle PQR under an enlargement.

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

- 6 Rajah 3 menunjukkan pelan sebuah taman berbentuk segi tiga bersudut tegak PQR .

Diagram 3 shows a plan of park in a shaped of right angled triangle PQR .



Rajah 3
Diagram 3

Diberi bahawa luas taman PQR ialah $4.2 \times 10^3 \text{ m}^2$.

Hitung panjang PQ , dalam m.

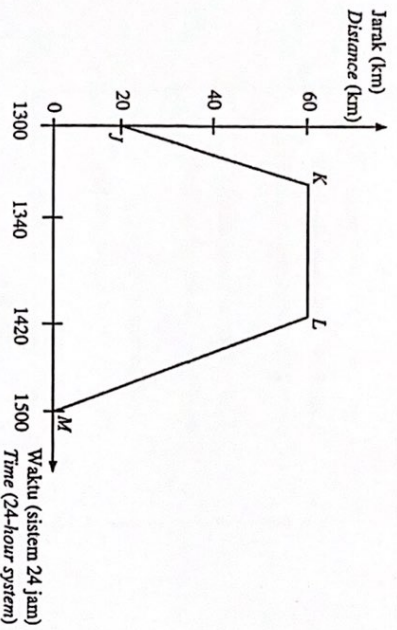
It is given that the area of park PQR is $4.2 \times 10^3 \text{ m}^2$.

Calculate the length of PQ , in m.

- A 1.47×10
B 1.47×10^2
C 2.94×10
D 2.94×10^2

- 7 Rajah 4 menunjukkan graf jarak-masa bagi gerakan kereta untuk suatu tempoh masa tertentu.

Diagram 4 shows a distance-time graph of the motion of a car in a particular period of time.



Rajah 4
Diagram 4

Apakah garis yang mewakili kereta itu ketika tidak bergerak?
What is the line that represents the car when it is not in motion?

- A OJ
B JK
C KL
D LM

- 8 Bundarkan 90456 kepada tiga angka bererti.

Round off 90456 correct to three significant figures.

- A 90400
B 90450
C 90460
D 90500

- 9 Ringkaskan:

Simplify:

$$(x^2)^4 \times x^{-3}$$

- A x^5
B x^3
C x^{-18}
D x^{-24}

- 10 Ungkapkan $\frac{5}{3n} - \frac{n-6}{6n^2}$ sebagai satu pecahan tunggal dalam bentuk termudah.

Express $\frac{5}{3n} - \frac{n-6}{6n^2}$ as a single fraction in its simplest form.

- A $\frac{3n-6}{2n^2}$
B $\frac{3n+2}{2n^2}$
C $\frac{2n-3}{3n^2}$
D $\frac{2n+1}{3n^2}$

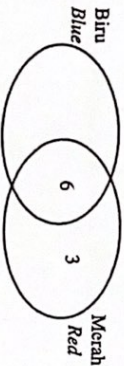
- 11 Daud ingin menanam x batang pokok mangga dan y batang pokok jambu. Jumlah bilangan kedua-dua jenis pokok yang ingin ditanam tidak melebihi 120 batang. Bilangan pokok mangga yang dia ingin tanam adalah kurang daripada bilangan pokok jambu. Antara ketaksamaan linear berikut, manakah yang mewakili situasi tersebut?

Daud wants to plant x mango trees and y guava trees. The total number of both types of tree to be planted is not more than 120. The number of mango trees that he wants to plant are less than the number of guava trees.

Which of the following linear inequalities represent the situations?

- A $x + y < 120, x < y$
 B $x + y < 120, x \leq y$
 C $x + y \leq 120, x < y$
 D $x + y \geq 120, x \leq y$

- 12 Rajah 5 menunjukkan bilangan murid yang membeli kemeja yang berlainan warna. Diagram 5 shows the number of students who bought different colours of shirts.



Rajah 5
Diagram 5

Seorang murid dipilih secara rawak. Diberi bahawa kebarangkalian murid yang membeli kemeja kedua-dua warna ialah $\frac{2}{7}$.

Cari kebarangkalian murid yang tidak membeli kemeja berwarna merah.

A student is chosen at random. It is given that the probability of students who bought both colours of shirt is $\frac{2}{7}$.

Find the probability of students who did not buy red shirt.

- A $\frac{1}{7}$
 B $\frac{3}{7}$
 C $\frac{4}{7}$
 D $\frac{5}{7}$

- 13 Rajah 6 menunjukkan sebahagian daripada proses untuk menghasilkan satu model matematik untuk kerja sanitasi bilik darjah.

Diagram 6 shows parts of a process to produce a mathematical model for classroom sanitisation.

L , luas bilik darjah yang disanitasi
 L , the area of the classroom to be sanitised
 V , isi padu cecair bahan sanitasi
 V , the volume of the sanitisation liquid
 P , harga cecair bahan sanitasi
 P , the price of the sanitisation liquid

Rajah 6
Diagram 6

Antara komponen proses permodelan berikut, yang manakah ditunjukkan dalam Rajah 6?

Which of the following components of the modelling process is shown in Diagram 6?

- A Mengenal pasti dan mendefinisikan masalah
 Identifying and defining the problem
 B Membuat andaian dan mengenal pasti pemboleh ubah
 Making assumptions and identifying variables
 C Menentukan dan menafsir penyelesaian dalam konteks masalah berkenaan
 Verifying and interpreting the solution in the context of the problem
 D Melaporkan dapatan
 Reporting the findings

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- 14 Diberi bahawa $\frac{4k}{6} + 7 = \frac{k}{12}$, cari nilai k .

Given that $\frac{4k}{6} + 7 = \frac{k}{12}$, find the value of k .

A 12

B $9\frac{1}{3}$ C $-9\frac{1}{3}$

D -12

- 15 Rajah 7 menunjukkan suatu set data.

Diagram 7 shows a set of data.

$x, x+2, x, x+4, x+3, x+3, x+2$

Rajah 7

Diagram 7

Diberi bahawa jumlah hasil tambah data tersebut ialah 63, cari nilai bagi median.

Given that the sum of the data is 63, find the value of median.

A 7

B 9

C 10

D 11

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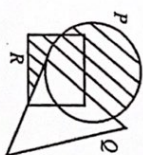
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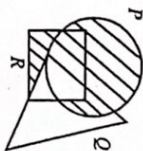
- 16 Antara berikut yang manakah mewakili set $(P \cap R') \cup Q'$?

Which of the following represents set $(P \cap R') \cup Q'$?

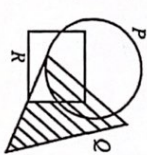
A



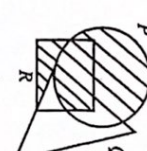
B



C



D



- 17 Diberi bahawa $\frac{3km-1}{m+2} = \frac{k}{2}$, ungkapkan k dalam sebutan m .

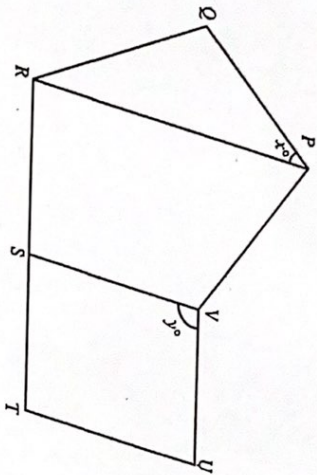
Given that $\frac{3km-1}{m+2} = \frac{k}{2}$, express k in terms of m .

A $k = \frac{3}{5m}$ B $k = \frac{3}{2m}$ C $k = \frac{2}{5m-1}$ D $k = \frac{2}{5m-2}$

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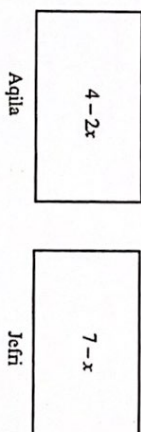
- 18 Rajah 8 ialah pentagon sekata $PQRSTV$ dan rombus $STUV$. RST ialah garis lurus.
Diagram 8 shows a regular pentagon $PQRSTV$ and a rhombus $STUV$. RST is a straight line.



Rajah 8
Diagram 8

- Hitung nilai $x + y$.
Calculate the value of $x + y$.
- A 108
B 144
C 156
D 180

- 19 Aqila dan Jefri merupakan dua orang calon bagi pemilihan ketua murid di sebuah sekolah. Rajah 9 menunjukkan bilangan undi dalam sebutan x bagi Aqila dan Jefri.
Aqila and Jefri are two candidates for the head student election in a school. Diagram 9 shows the number of votes in terms of x for Aqila and Jefri.



Rajah 9
Diagram 9

- Jika Aqila mempunyai lebih peluang untuk menang berbanding Jefri, cari julat nilai x .
If Aqila has more chance to win compared to Jefri, find the range of values of x .
- A $x < -3$
B $x > -3$
C $x \leq -3$
D $x \geq -3$

- 20 Diberi bahawa y berubah secara langsung dengan kuasa dua x apabila $y = 8$ dan $x = 4$.
Ungkapkan y dalam sebutan x .
It is given that y varies directly as the square of x when $y = 8$ and $x = 4$.
Express y in terms of x .

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

21. Antara berikut yang manakah betul?

Which of the following is correct?

- A Deductible ialah jumlah yang ditanggung oleh pemegang polisi selepas layak membuat tuntutan daripada syarikat insurans
Deductible is an amount that is borne by the policyholder after they can make a claim from the insurance company
- B Penalti ko-insurans ialah jumlah yang ditanggung oleh syarikat insurans atas kerugian separa yang dialami akibat tidak memenuhi tuntutan ko-insurans
Co-insurance penalty is an amount that is borne by the insurance company on the partial loss incurred due to an unfulfilled co-insurance claim
- C Ko-insurans ialah perkongsian kos dengan keadaan pemegang polisi menanggung peratusan tertentu daripada kerugian bersama dengan syarikat insurans
Co-insurance is the cost sharing where the policyholder bears a certain percentage of loss together with the insurance company
- D Premium ialah jumlah pampasan yang dibayar oleh syarikat insurans kepada pemegang polisi
Premium is an amount of compensation paid by the insurance company to the policyholder

22. Pada bulan Mei 2023, Sally menerima jumlah pendapatan sebanyak RM5 500. Perbelanjaan tetap dan perbelanjaan tidak tetap bulanan masing-masing ialah RM3 780 dan RM6y. Pada hujung bulan, Sally mempunyai aliran tunai negatif sebanyak RM690. Hitung nilai y.

In May 2023, Sally received a total income of RM5 500. The fixed expenses and variable expenses are RM3 780 and RM6y respectively. At the end of the month, Sally had a negative cash flow of RM690.

Calculate the value of y.

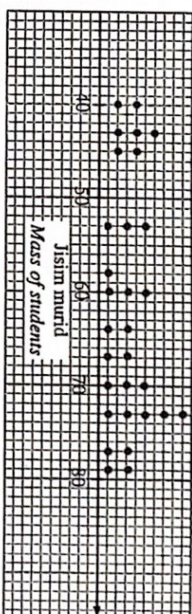
- A RM1 030
B RM2 410
C RM4 810
D RM6 190

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23. Rajah 10 menunjukkan plot titik yang mewakili jisim 30 orang murid.

Diagram 10 shows a dot plot that represents the mass of 30 students.



Rajah 10
Diagram 10

Tentukan beza jisim terbesar dan jisim terkecil murid itu.

Determine the difference of the largest mass and the smallest mass of the students.

- A 15
B 33
C 39
D 40

24. Razif membeli sebuah van bernilai RM108 000 secara kredit. Bank mengenakan kadar faedah 3% setahun. Dia membuat bayaran pendahuluan sebanyak 10% dan tempoh bayaran balik ialah selama 9 tahun.

Hitung ansuran bulanan yang perlu dibayar oleh Razif.

Razif bought a van worth RM108 000 on credit. The bank imposes an interest rate of 3% per annum. He pays 10% down payment and the repayment period is 9 years.

Calculate the monthly instalment to be paid by Razif.

- A RM 1 143
B RM 1 170
C RM 1 243
D RM 1 270

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- 25 Rajah 11 menunjukkan satu pernyataan.

Diagram 11 shows a statement.

Rani hendak mengumpul RM10000 dalam tempoh 2 tahun untuk membeli sebuah motosikal.
Rani wants to save up RM10000 in 2 years to buy a motorcycle.

Rajah 11

Diagram 11

Antara proses pengurusan kewangan berikut, yang manakah menerangkan pernyataan tersebut?

Which of the following financial management processes explains the statement?

- A Mewujudkan pelan kewangan
Creating financial plan
- B Menetapkan matlamat kewangan
Setting financial goal
- C Melaksanakan pelan kewangan
Carrying out financial plan
- D Memina kedudukan kewangan
Evaluating financial status

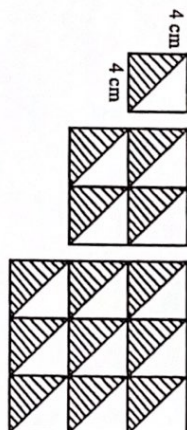
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- 26 Rajah 12 menunjukkan tiga corak pertama bagi satu jujukan.

Diagram 12 shows the first three patterns of a sequence.



Rajah 12

Diagram 12

Hitung luas kawasan bertorek, dalam cm^2 , bagi jujukan ke-8.

Calculate the area of the shaded region, in cm^2 , for the 8th sequence.

- A 128
- B 144
- C 512
- D 968

- 27 PQ dan RS adalah dua garis selari yang berada pada satu satah Cartes. Diberi bahawa persamaan garis lurus PQ ialah $3y + 2x = 9$ dan $S(6, -5)$.

Tentukan pintasan- y bagi garis lurus RS .

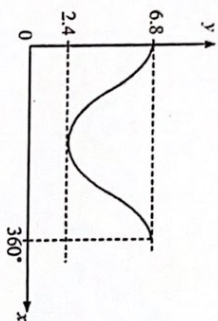
PQ and RS are two parallel lines that lie on a Cartesian plane. It is given that the equation of straight line PQ is $3y + 2x = 9$ and $S(6, -5)$.

Determine y -intercept for the straight line RS .

- A 7
- B 4
- C -1
- D -9

SULIT

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28 Rajah 13 menunjukkan graf fungsi $y = 2.2 \cos x + c$.Diagram 13 shows a graph of function $y = 2.2 \cos x + c$.Rajah 13
Diagram 13Temukan nilai c .Determine the value of c .

- A 3.4
B 4.4
C 4.6
D 5.6

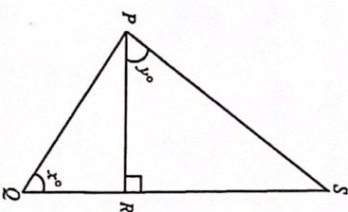
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29 Rajah 14 menunjukkan segi tiga PQS .Diagram 14 shows a triangle PQS .Rajah 14
Diagram 14

Diberi bahawa $\sin x = \frac{12}{13}$, $\cos y = \frac{3}{5}$ dan $PQ = 13$ cm.
Hiung panjang, dalam cm, bagi QS .

It is given that $\sin x = \frac{12}{13}$, $\cos y = \frac{3}{5}$ and $PQ = 13$ cm.
Calculate the length, in cm, of QS .

- A 9
B 13
C 16
D 21

30 Hiung nilai bagi $194 + 10.5 \times 34.4$ dan bundarkan jawapan betul kepada dua angka bererti.

Calculate the value of $194 + 10.5 \times 34.4$ and round off the answer correct to two significant figures.

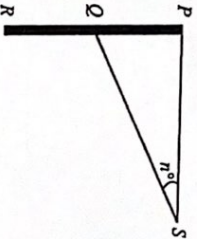
- A 550
B 560
C 7000
D 7030

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- 31 Rajah 15 menunjukkan sebatang tiang tegak PR . PS ialah papan mengufuk. Seutas tali dilatah tegang dari S ke Q .

Diagram 15 shows a vertical pole PR . PS is a horizontal board. A string is tied tightly from S to Q .

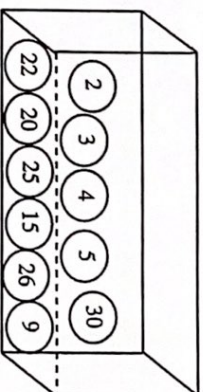


Rajah 15
Diagram 15

Diberi bahawa $PR = 60$ cm, $PS = 40$ cm dan $PQ = QR$.
Hitung nilai $\sin n$.
It is given that $PR = 60$ cm, $PS = 40$ cm and $PQ = QR$.
Calculate the value of $\sin n$.

- A $\frac{3}{5}$
B $\frac{3}{4}$
C $\frac{4}{5}$
D $\frac{4}{3}$

- 32 Rajah 16 menunjukkan 11 kad bernombor dalam sebuah kotak.
Diagram 16 shows 11 numbered cards in a box.



Rajah 16
Diagram 16

Sekeping kad dipilih secara rawak daripada kotak itu.
Apakah kebarangkalian bahawa kad yang dipilih itu bukan nombor perdana?
A card is chosen at random from the box.
What is the probability that the card chosen is not a prime number?

- A $\frac{1}{11}$
B $\frac{6}{11}$
C $\frac{8}{11}$
D $\frac{9}{11}$

- 33 Puan Ani mengandungi anak kembar.

Nyatakan ruang sampel yang mungkin bagi jantina bayi-bayi itu.
Puan Ani is pregnant with twins.

State the possible sample space of the gender of the babies.

- A $\{(Lelaki, Lelaki), (Perempuan, Perempuan)\}$
B $\{(Boy, Boy), (Girl, Girl)\}$
C $\{(Lelaki, Perempuan), (Perempuan, Lelaki)\}$
D $\{(Boy, Girl), (Girl, Boy)\}$

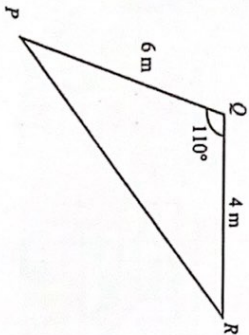
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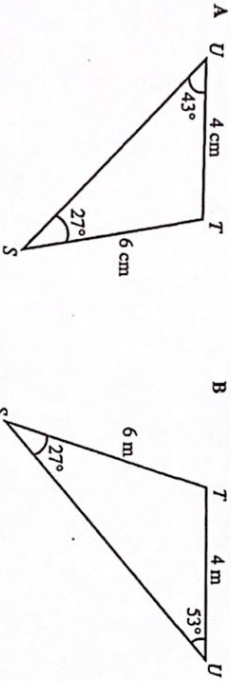
34 Rajah 17 menunjukkan segi tiga PQR .

Diagram 17 shows a triangle PQR .



Rajah 17
Diagram 17

Segi tiga manakah yang kongruen dengan segi tiga PQR ?
Which triangle is congruent to triangle PQR ?



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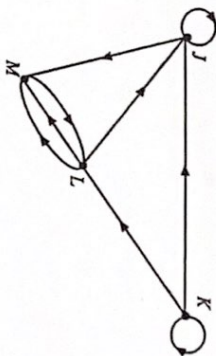
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35 Rajah 18 menunjukkan satu graf terarah dengan bucu J , K , L dan M .

Diagram 18 shows a directed graph with vertices J , K , L and M .



Rajah 18
Diagram 18

Antara berikut, yang manakah betul?
Which of the following is correct?

- A $d_{in}(J) = 3$
- B $d_{out}(K) = 2$
- C $d_{in}(L) = 3$
- D $d_{out}(M) = 2$

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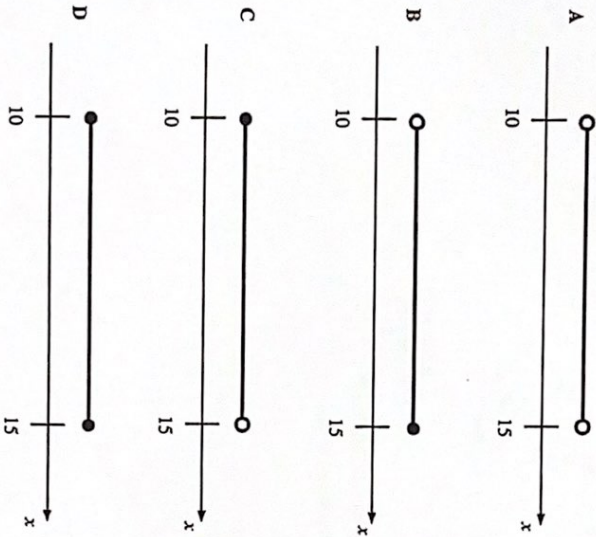
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36. Harga sehelai baju adalah lebih daripada RM10 dan kurang daripada RM15.

Antara garis nombor berikut, yang manakah mewakili harga baju tersebut?

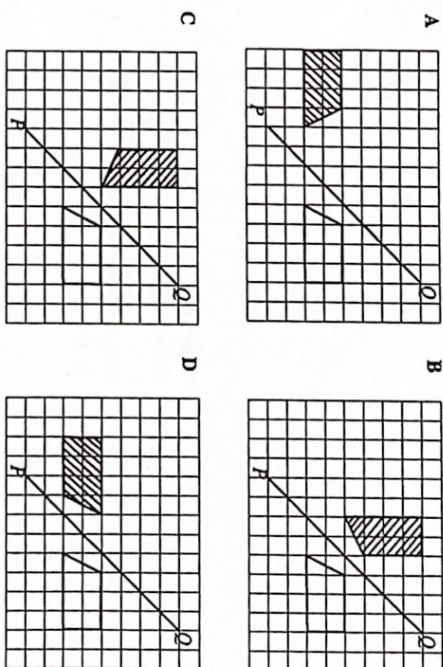
The price of a shirt is more than RM10 and less than RM15.

Which of the following number line represents the price of the shirt?



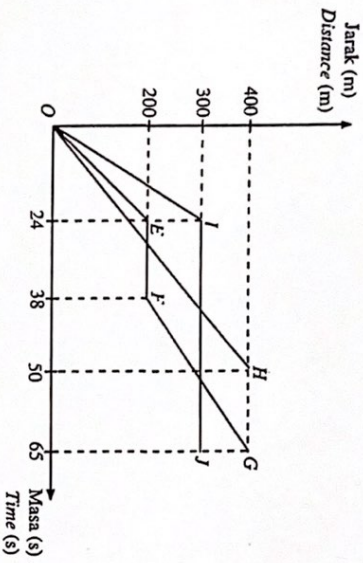
37. Antara rajah berikut, yang manakah menunjukkan satu pantulan pada garis PQ ?

Which of the following diagrams shows a reflection in the line PQ ?



- 38 Rajah 19 menunjukkan graf jarak-masa bagi Am, Ben dan Chan dalam acara larian 400 m.

Diagram 19 shows the distance-time graph of Am, Ben and Chan in a 400 m run event.



Rajah 19
Diagram 19

Petunjuk:

Legend:

OIJ - Larian Am / Am's run

OH - Larian Ben / Ben's run

OIEFG - Larian Chan / Chan's run

Antara berikut, yang manakah betul?

Which of the following is correct?

Pelari Runner	Laju purata (m s^{-1}) Average speed (m s^{-1})
A Am	4.62
B Ben	6.15
C Chan	8.00
D Ben	8.00

- 39 Diberi bahawa $G = \begin{pmatrix} -1 & 9 & 0 \\ 6 & 8 & 4 \\ -5 & -3 & 2 \end{pmatrix}$ dan $H = \begin{pmatrix} 6 & 2 \\ -5 & -3 \\ 4 & -1 \end{pmatrix}$.

Hitung nilai $g_{22} + h_{12}$.

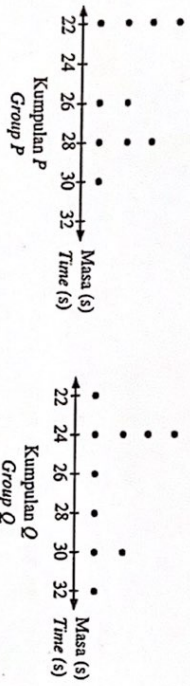
He is given that $G = \begin{pmatrix} -1 & 9 & 0 \\ 6 & 8 & 4 \\ -5 & -3 & 2 \end{pmatrix}$ and $H = \begin{pmatrix} 6 & 2 \\ -5 & -3 \\ 4 & -1 \end{pmatrix}$.

Calculate the value of $g_{22} + h_{12}$.

- A -9
B -8
C -2
D -1

- 40 Rajah 20 menunjukkan dua set plot titik yang mewakili masa dalam saat bagi dua kumpulan pemenang dalam suatu pertandingan.

Diagram 20 shows two sets of dot plot that represent time in seconds for two groups of winners in a competition.



Rajah 20
Diagram 20

Antara berikut, pasangan manakah betul?

Which of the following pair is correct?

	Kumpulan Team	Beza cerapan tertinggi dan terendah Difference between the highest value and the lowest value
A	P	3
B	P	10
C	Q	3
D	Q	10

KERTAS PEPERIKSAAN TAMAT