

NAMA : .....TINGKATAN : .....

## PEPERIKSAAN PERCUBAAN SPM TAHUN 2026

## MATEMATIK

1449/1

## Kertas 1

1 Jam 30 minit

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**JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU**

Arahan :

1. *Kertas peperiksaan ini mengandungi **40** soalan.*
2. *Jawab **semua** soalan.*
3. *Bagi setiap soalan, pilih **satu** jawapan sahaja. **Hitamkan** jawapan anda pada kertas jawapan objektif yang disediakan.*
4. *Kertas peperiksaan ini adalah dalam dwibahasa.*
5. *Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
6. **Kertas jawapan objektif** hendaklah diserahkan kepada pegawai peperiksaan pada akhir peperiksaan.

Disediakan oleh :

Disemak oleh :

Disahkan oleh :

JKD MATEMATIK

.....

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Kertas soalan ini mengandungi 26 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  $a^{\frac{m}{n}} = (a^m)^{\frac{1}{n}} = (a^{\frac{1}{n}})^m$
- 6  $a^{\frac{m}{n}} = (\sqrt[n]{a})^m$
- 7 Faedah mudah/ *Simple interest*,  $I = Prt$
- 8 Nilai matang / *Maturity value*,  
 $MV = P(1 + \frac{r}{n})^m$
- 9 Jumlah bayaran balik / *Total repayment*,  $A = P + Prt$
- 10  $\text{Premium} = \frac{\text{Nilai muka polisi}}{\text{RMx}} \times (\text{kadar premium per RMx})$   
 $\text{Premium} = \frac{\text{Face value of policy}}{\text{RMx}} \times (\text{Premium rate per RMx})$
- 11 Jumlah insurans yang harus dibeli =  $(\text{Peratusan ko} - \text{insurans}) \times (\text{nilai boleh insurans harta})$   
 $\text{Amount of required insurance} = (\text{Percentage of co} - \text{insurance}) \times (\text{insurable value of property})$

## 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 =  $\frac{\text{jumlah jarak}}{\text{jumlah masa}}$   
 $\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$
- 4  $m = \frac{y_2 - y_1}{x_2 - x_1}$
- 5  $A^{-1} = \frac{1}{ad-bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$
- 6  $m = -\frac{\text{pintasan}-y}{\text{pintasan}-x}$   
 $m = -\frac{y-\text{intercept}}{x-\text{intercept}}$

**SUKATAN DAN GEOMETRI**  
**MEASUREMENT AND GEOMETRY**

1. Teorem Pythagoras / *Pythagoras Theorem*,  $c^2 = a^2 + b^2$
2. Hasil tambah sudut pedalaman poligob / *Sum of interior angles of a polygon*  
 $= (n - 2) \times 180^\circ$
3. Lilitan bulatan  $= \pi d = 2\pi r$
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-layang  $= \frac{1}{2} \times$  hasil darab panjang dua pepenjuru  
*Area of kite*  $= \frac{1}{2} \times \text{product of the length of two diagonals}$
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*  $= \text{cross sectional area} \times \text{height}$
13. Isi padu silinder  $= \pi r^2 h$   
*Volume of cylinder*  $= \pi r^2 h$

14. Isi padu kon  $= \frac{1}{3}\pi j^2 t$

$$Volume\ of\ cone = \frac{1}{3}\pi r^2 h$$

15. Isi padu sfera  $= \frac{4}{3}\pi j^3$

$$Volume\ of\ sphere = \frac{4}{3}\pi r^3$$

16. Isi padu piramid  $= \frac{1}{3} \times \text{luas tapak} \times \text{tinggi}$

$$Volume\ of\ pyramid = \frac{1}{3} \times \text{base area} \times \text{height}$$

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

$$Scale\ factor, k = \frac{PA'}{PA}$$

18. Luas imej  $= k^2 \times \text{luas objek}$

$$Area\ of\ image = k^2 \times \text{area of object}$$

### STATISTIK DAN KEBARANGKALIAN STATISTICS AND PROBABILITY

1. Min / Mean,  $\bar{x} = \frac{\Sigma x}{N}$

2. Min / Mean,  $\bar{x} = \frac{\Sigma fx}{\Sigma f}$

3. Varians / Variance,  $\sigma^2 = \frac{\Sigma x^2}{N} - \bar{x}^2 = \frac{\Sigma (x - \bar{x})^2}{N}$

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

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

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

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

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

Jawab **semua** soalan.

- 1 Bundarkan 34235 betul kepada 3 angka bererti.  
*Round off 34235 correct to three significant figures.*

A 340  
B 342  
C 3400  
D 34200

- 2 Ungkapkan  $\frac{0.0098}{7000}$  dalam bentuk piawai.

*Express  $\frac{0.0098}{7000}$  in standard form.*

A  $1.4 \times 10^{-6}$   
B  $1.4 \times 10^{-5}$   
C  $1.4 \times 10^5$   
D  $1.4 \times 10^6$

- 3 Diberi suatu jujukan nombor, 5, 11, 17, 23,  $x$ , ...  
*Given a number sequence. 5, 11, 17, 23,  $x$ , ...*

Cari nilai  $x$ .

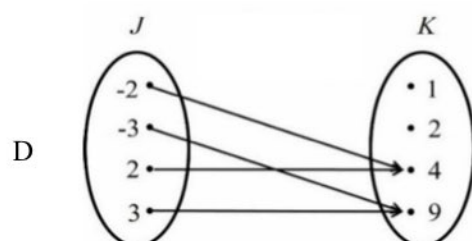
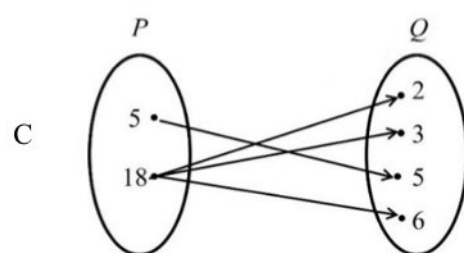
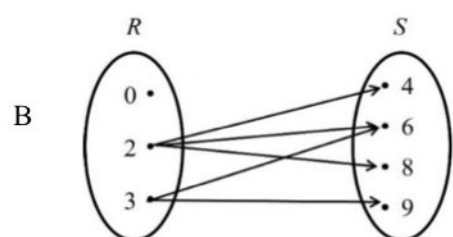
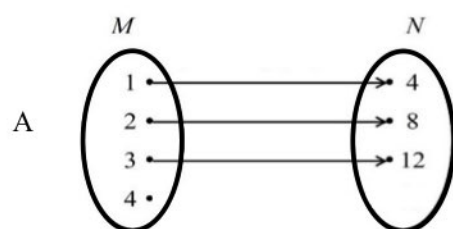
*Find the value of  $x$ .*

A 29  
B 31  
C 35  
D 41

- 4 Fairi membeli  $n$  buah buku latihan dengan harga RM3 sebuah. Dia membayar dengan sekeping wang kertas RM50. Terbitkan satu ungkapan algebra bagi mewakili baki wang Fairi.  
*Fairi buys  $n$  exercise books at RM3 each. He pays with a RM50 note. Derive an algebraic expression to represent Fairi's remaining balance.*

- A  $50 + 3n$   
 B  $50 - 3n$   
 C  $3n - 50$   
 D  $3 - 50n$

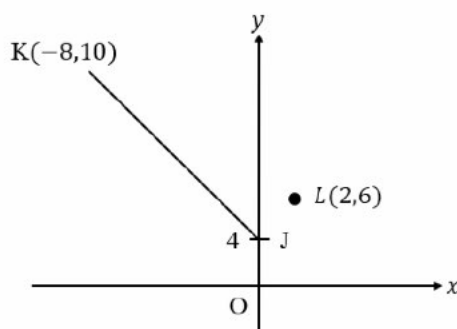
- 5 Manakah antara berikut merupakan suatu fungsi ?  
*Which of the following is a function?*



- 6 Diberi bahawa  $2j\sqrt{\pi} = \sqrt{\frac{V}{t}}$ , ungkapkan  $V$  dalam sebutan  $j$  dan  $t$ .

Given that  $2j\sqrt{\pi} = \sqrt{\frac{V}{t}}$ , express  $V$  in term of  $j$  and  $t$ .

- A  $V = \sqrt{2j\pi t}$   
 B  $V = 2j\sqrt{\pi t}$   
 C  $V = 4\pi j^2 t$   
 D  $V = 2\pi j^2 t$
- 7 Rajah 1 menunjukkan garis lurus JK dan titik L pada satah Cartes.  
 Diagram 1 below shows straight line JK and point L on a Cartesian plane.

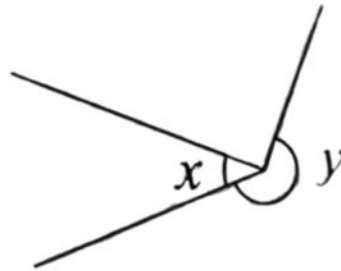


Rajah 1  
 Diagram 1

Cari persamaan garis lurus yang selari dengan JK dan melalui titik L.  
 Find the equation of the straight lines that is parallel to JK and passes through point L.

- A  $4y = 3x + 30$   
 B  $4y = -3x + 30$   
 C  $4y = -3x + 15$   
 D  $4y = 3x + 15$

- 8 Rajah 2 menunjukkan suatu sudut.  
*Diagram 2 shows an angle.*

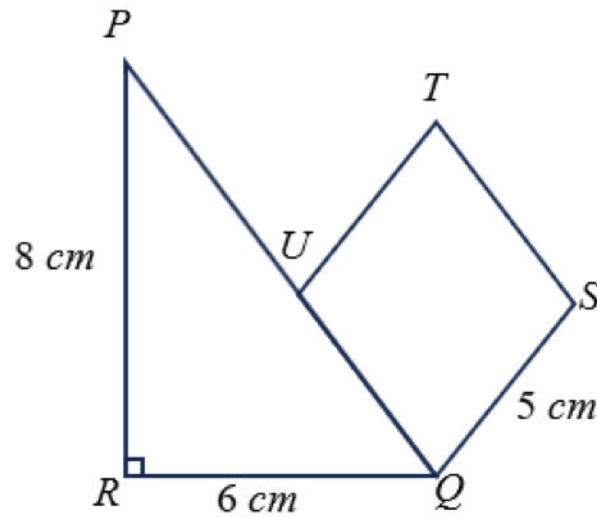


Rajah 2  
*Diagram 2*

Apakah sudut  $x$  dan  $y$ ?  
*What is the angles of  $x$  and  $y$ ?*

- A  $x$  = sudut tirus / acute angle  
 $y$  = sudut tegak / right angle
- B  $x$  = sudut tegak / right angle  
 $y$  = sudut cakah / obtuse angle
- C  $x$  = sudut tirus / acute angle  
 $y$  = sudut refleks / reflex angle
- D  $x$  = sudut cakah / obtuse angle  
 $y$  = sudut refleks / reflex angle

- 9 Rajah 3 menunjukkan, sebuah segi tiga bersudut tegak PQR dan sebuah rombus QSTU.  
*Diagram 3 shows a right angled triangle PQR and a rhombus QSTU.*

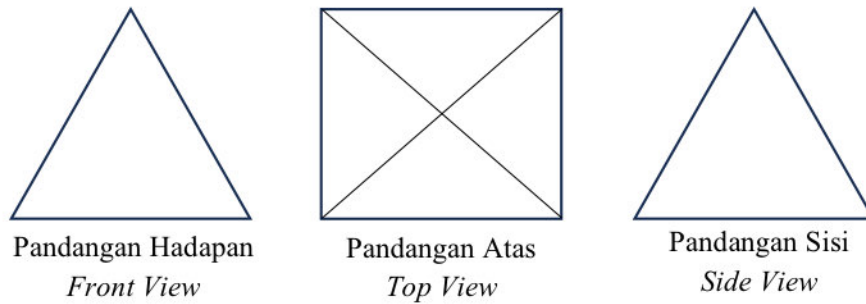


Rajah 3  
Diagram 3

Diberi U ialah titik tengah kepada PQ.  
*Given that U is the midpoint of PQ*  
Cari perimeter, dalam cm, seluruh rajah itu.  
*Find the perimeter, in cm, of the whole diagram.*

- A 19
- B 26
- C 34
- D 39

- 10 Rajah 4 menunjukkan unjuran ortogon sebuah piramid yang berasaskan segi empat.  
*Diagram 4 shows the orthographic projection of a pyramid with a square base.*



Rajah 4  
*Diagram 4*

Pilih pelan yang betul bagi objek tersebut.  
*Choose the correct plan for the object.*

- A Pandangan Hadapan  
*Front View*
- B Pandangan Atas  
*Top View*
- C Pandangan Sisi  
*Side View*
- D Pandangan Oblik  
*Oblique View*

- 11 Satu huruf dipilih secara rawak daripada perkataan “KESIHATAN”. Cari kebarangkalian bahawa satu huruf vokal dipilih.  
*A letter is chosen randomly from the word “KESIHATAN”. Find the probability that a vowel is chosen.*

A  $\frac{3}{9}$

B  $\frac{4}{9}$

C  $\frac{5}{9}$

D  $\frac{7}{9}$

- 12 Selesaikan / Solve

$$(-2^m) = (-2)^9 \times (-2)^{-4}$$

A  $m = -5$

B  $m = -13$

C  $m = 5$

D  $m = 13$

- 13 Antara berikut, yang manakah adalah sama dengan  $3^{-4}$ ?  
*Which of the following equals  $3^{-4}$ ?*

A  $3 \times 3 \times 3 \times 3$

B  $(-3) \times (-3) \times (-3) \times (-3)$

C  $\frac{1}{3 \times 3 \times 3 \times 3}$

D  $\frac{1}{(-3) \times (-3) \times (-3) \times (-3)}$

- 14  $23_4 + 101_4 - 33_4 =$
- A  $13_4$
- B  $19_4$
- C  $31_4$
- D  $91_4$
- 15 Ungkapkan  $1 \times 6^5 + 2 \times 6^3 + 4 \times 6$  sebagai suatu nombor dalam asas enam.  
*Express  $1 \times 6^5 + 2 \times 6^3 + 4 \times 6$  as a number in base six.*
- A  $124_6$
- B  $10204_6$
- C  $102004_6$
- D  $102040_6$
- 16 Azlin menerima pendapatan aktif sebanyak RM 3700 sebulan dan pendapatan pasif sebanyak RM 500 sebulan. Perbelanjaan tetap dan tidak tetap Azlin masing-masing berjumlah RM 1520 dan RM 1750 sebulan. Tentukan kedudukan aliran tunai bulanannya.  
*Azlin receives an active income of RM 3700 per month and a passive income of RM 500 a month. Her monthly fixed and variable expenses are RM 1520 and RM 1750 respectively. Determine the condition of her monthly cash flow.*
- A Aliran tunai positif, RM 930  
*Positive cash flow, RM 930*
- B Aliran tunai positif, RM 3270  
*Positive cash flow, RM 3270*
- C Aliran tunai negatif, RM 930  
*Negative cash flow, RM 930*
- D Aliran tunai negatif, RM 3270  
*Negative cash flow, RM 3270*

- 17 Antara matlamat kewangan berikut, yang manakah memenuhi konsep SMART?

*Which of the following financial goals meets SMART concept?*

- A Jimat RM8 000 dalam setahun dengan penjimatan sebanyak RM 800 daripada gaji bulanan untuk membawa keluarga melancong ke London.  
*Save RM8 000 in one year by saving of RM800 from monthly salary to bring family travelling to London.*
- B Jimat RM500 untuk membeli basikal.  
*Save RM500 to buy bicycle.*
- C Beli beg tangan Baharu bernilai RM800 bulan depan.  
*Buy a new handbag worth RM800 next month.*
- D Beli telefon bimbit jenama M bernilai RM 4 500.  
*Buy a new handphone brand M worth RM4 500.*
- 18 Jadual 1 menunjukkan sebahagian maklumat polisi insurans perubatan yang dibeli oleh Puan Lisa. Fasal penyertaan peratusan ko-insurans dalam polisi perubatan Puan Lisa tidak ditunjukkan.  
*Table 1 shows part of the medical insurance policy information purchased by Puan Lisa. The co-insurance percentage participation clause in Puan Lisa's insurance policy is not shown.*

|                                                        |            |
|--------------------------------------------------------|------------|
| Deduktibel / <i>Deductible</i>                         | RM 1000    |
| Peratusan ko-insurans / <i>Co-insurance percentage</i> |            |
| Had tahunan / <i>Annual limit</i>                      | RM 500,000 |

Jadual 1

Table 1

Puan Lisa telah menjalani suatu pembedahan dengan jumlah kos RM 247,000. Bayaran kos yang ditanggung oleh Puan Lisa ialah RM 25,600. Hitung peratusan ko-insurans dalam polisi insurans perubatan Puan Lisa.

*Puan Lisa underwent a surgery with a total cost of RM 247,000. The cost borne by Puan Lisa is RM 25,600. Calculate the co-insurance percentage in Puan Lisa's medical insurance policy.*

- A 75/25
- B 80/20
- C 85/15
- D 90/10

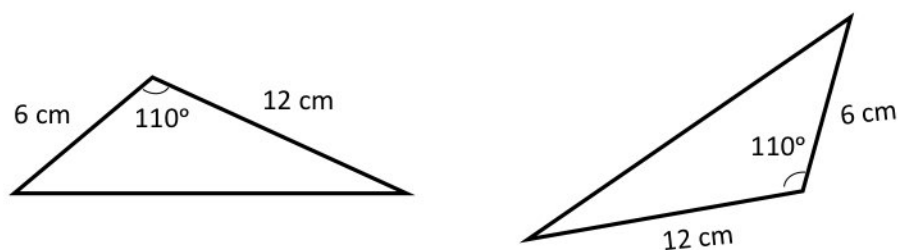
- 19 Encik Kumar memiliki sebuah rumah kediaman yang mempunyai nilai tahunan RM 9,600. Diberi kadar cukai pintu yang dikenakan oleh Majlis Perbandaran ialah 5%. Berapakah cukai pintu yang perlu dibayar oleh Encik Kumar untuk setiap enam bulan ?

*Encik Kumar owns a house which has annual value of RM 9,600. It is given that the property assessment tax rate imposed by Municipal Council is 5%. What is the property assessment tax payable by Encik Kumar every six months?*

- A RM 120
- B RM 240
- C RM 360
- D RM 480

- 20 Rajah 5 menunjukkan pasangan segi tiga berikut adalah kongruen. Nyatakan sifat kekongruenan segi tiga yang digunakan.

*Diagram 5 shows a pairs of congruent. Triangles. State the property of triangle congruency used.*



Rajah 5  
Diagram 5

- A Sudut-Sudut-Sisi (AAS)  
*Angle-Angle-Side (AAS)*
- B Sisi-Sudut-Sisi (SAS)  
*Side-Angle-Side (SAS)*
- C Sudut-Sisi-Sudut (ASA)  
*Angle-Side-Angle (ASA)*
- D Sisi-Sisi-Sudut (SSA)  
*Side-Side-Angle (SSA)*

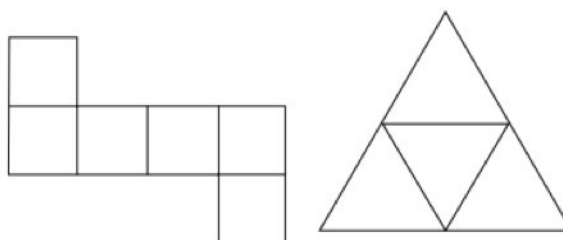
- 21  $A'B'C'$  ialah imej bagi sebuah segitiga ABC di bawah suatu pembesaran berpusat di P dengan faktor skala 3. Jika luas segi tiga ABC ialah  $8 \text{ cm}^2$ , berapakah luas imejnya?  
 *$A'B'C'$  is the image of a triangle ABC under a magnification centered at P with a scale factor of 3. If the area of triangle ABC is  $8 \text{ cm}^2$ , what is the area of the image?*

- A  $24 \text{ cm}^2$
- B  $48 \text{ cm}^2$
- C  $72 \text{ cm}^2$
- D  $96 \text{ cm}^2$

- 22 Diberi  $\sin \theta = \frac{\sqrt{3}}{2}$  dan  $90^\circ \leq \theta \leq 270^\circ$ . Tentukan nilai  $\theta$   
*Given  $\sin \theta = \frac{\sqrt{3}}{2}$  and  $90^\circ \leq \theta \leq 270^\circ$ . Determine the value of  $\theta$*

- A  $60^\circ$
- B  $120^\circ$
- C  $240^\circ$
- D  $300^\circ$

- 23 Rajah 6 menunjukkan 2 buah bentangan. Nyatakan bentuk asal bentangan di bawah.  
*Diagram 6 shows two nets. State the original shape of the net below.*



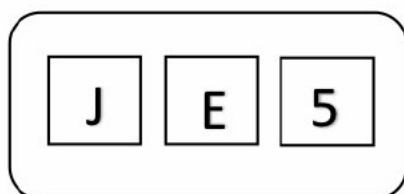
Rajah 6  
Diagram 6

- A Kuboid dan Prisma  
*Cuboid and Prism*
- B Kubus dan Prisma  
*Cube and Prism*
- C Kuboid dan Piramid  
*Cuboid and pyramid*
- D Kubus dan Piramid  
*Cube and pyramid*

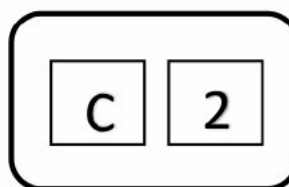
- 24 Yang manakah merupakan data kategori?  
Which of the following is categorical data?

- A Tinggi murid  
Height of students
- B Jisim badan  
Body mass
- C Warna kereta  
Colour of a car
- D Umur murid  
Age of students

- 25 Rajah 7 menunjukkan tiga kad dalam kotak  $X$  dan 2 kad dalam kotak  $Y$ .  
Diagram 7 shows three cards in box  $X$  and 2 cards in box  $Y$ .



Kotak X/ Box X



Kotak Y/ Box Y

Rajah 7  
Diagram 7

Dua kad dipilih secara rawak, kad pertama dipilih dari kotak  $X$  dan kad kedua dipilih dari kotak  $Y$ .

Two cards are picked at random; the first card is picked from box  $X$  and the second card is picked from box  $Y$ .

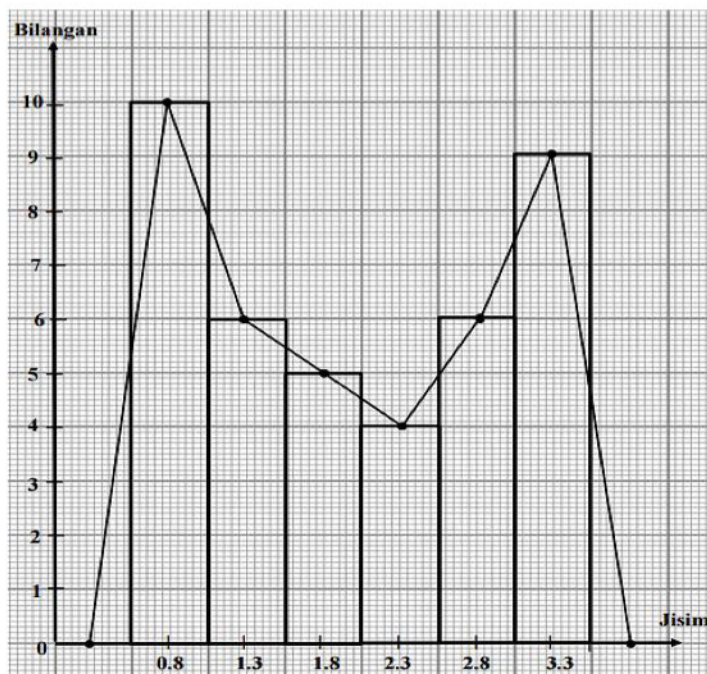
Antara ruang sampel berikut yang manakah betul?

Which of the following sample space is correct?

- A  $\{JE, J5, E5, C2\}$
- B  $\{JC, J2, EC, E2, 5C, 52\}$
- C  $\{CJ, 2J, CE, 2E, C5, 25\}$
- D  $\{EJ, 5J, 5E, 2C\}$

- 26 Rajah 8 menunjukkan sebuah histogram dengan taburan jisim, dalam kg, bagi 40 biji buah tembikai. Nyatakan bentuk taburan histogram bagi data tersebut.

*Diagram 8 shows a histogram of the mass distribution, in kg, of 40 watermelons. State the shape of the histogram distribution for the data.*



Rajah 8  
Diagram 8

- A Bentuk Loceng  
*Bell shaped*
- B Bentuk 'U'  
*'U' shaped*
- C Bentuk pencong ke kanan  
*Positively skewed shaped*
- D Bentuk seragam  
*Uniform shaped*

- 27 Jadual 2 menunjukkan jadual kekerapan bagi jisim buah mangga, dalam kg yang diperoleh dari sebuah kebun. Antara berikut, yang manakah merupakan pengiraan sisihan piawai yang betul bagi data tersebut?

*Table 2 shows a frequency table mass of mangoes, in kg, obtained from a farm.*

*Which is the following being the correct calculation of standard deviation of the data?*

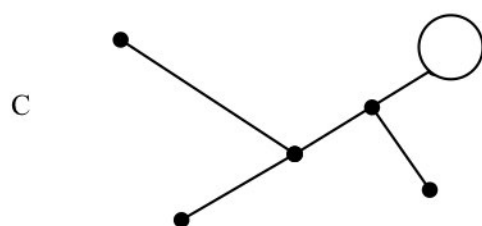
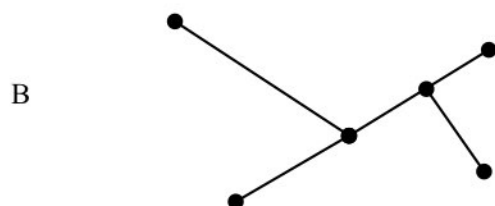
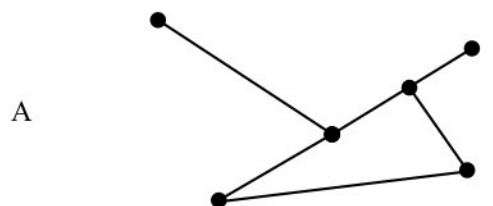
| Jisim (kg)<br><i>Mass (kg)</i> | Kekerapan (f)<br><i>Frequency(f)</i> | Titik Tengah (x)<br><i>Midpoint(x)</i> | $fx$ | $fx^2$ |
|--------------------------------|--------------------------------------|----------------------------------------|------|--------|
| 0.3 – 0.5                      | 50                                   | 0.4                                    | 20   | 8      |
| 0.6 – 0.8                      | 30                                   | 0.7                                    | 21   | 14.7   |
| 0.9 – 1.1                      | 20                                   | 1.0                                    | 20   | 20     |
| Jumlah<br><i>Total</i>         | 100                                  |                                        | 61   | 42.7   |

Jadual 2

Table 2

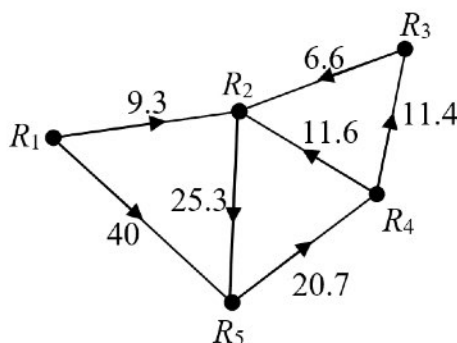
- A  $\sqrt{\frac{42.7}{61} - \left(\frac{61}{100}\right)^2}$
- B  $\sqrt{\frac{42.7}{100} - \left(\frac{61}{42.7}\right)^2}$
- C  $\sqrt{\frac{42.7}{100} - \left(\frac{61}{100}\right)^2}$
- D  $\sqrt{\frac{42.7}{100} - \left(\frac{100}{61}\right)^2}$

- 28 Antara berikut yang manakah pokok?  
*Which of the following is a tree?*



- 29 Rajah 9 menunjukkan graf terarah dan berpemberat yang menghubungkan bandar  $R_1$  dan empat bandar yang lain.

*Diagram 9 shows a directed and weighted graph connecting town  $R_1$  and four others towns.*



Rajah 9  
Diagram 9

Seorang pemandu lori ingin menghantar bekalan simen dari bandar  $R_1$  ke kilang yang terletak di bandar  $R_3$ . Tentukan laluan dengan jarak terpendek dari  $R_1$  ke  $R_3$  dengan syarat semua laluan hanya dilalui sekali sahaja.

*A lorry driver wants to deliver the cement supply from town  $R_1$  to a factory that located at town  $R_3$ . Determine the path with the shortest distance from  $R_1$  to  $R_3$  provided that all paths are traversed only once.*

- A 66.7  
B 55.6  
C 78.9  
D 77.8
- 30 Antara pernyataan berikut yang manakah pernyataan benar?  
*Which of following statement is true statement?*

- A  $2^0 = 1$   
B  $13 \times 3 = 2 \times 13$   
C 15 ialah nombor perdana  
15 is a prime number  
D Semua sudut tirus lebih daripada  $90^\circ$   
All acute angles greather than 90

- 31 Premis 1: Semua faktor bagi 21 ialah nombor ganjil.

*Premise 1: All factors of 21 are odd numbers.*

Premis 2: 7 ialah nombor ganjil.

*Premise 2: 7 is an odd number.*

Kesimpulan: 7 ialah faktor bagi 21.

*Conclusion: 7 is a factor of 21.*

Hujah deduktif di atas adalah

*The deductive argument above is*

- A Sah dan munasabah
  - B Sah tetapi tidak munasabah
  - C Tidak sah tetapi munasabah
  - D Tidak sah dan tidak munasabah
- 32 Diberi set semesta  $\xi = \{x: 21 \leq x \leq 35, x \text{ ialah integer}\}$
- Set  $P = \{x : x \text{ ialah nombor dua digit dengan kedua-dua digit adalah ganjil}\}$ ,
- Set  $Q = \{x : x \text{ ialah nombor perdana}\}$  dan
- Set  $R = \{x : x \text{ ialah nombor gandaan tiga}\}$
- Given that the universal set  $\xi = \{x: 21 \leq x \leq 35, x \text{ is an integer}\}$*
- Set  $P = \{x: x \text{ is a two-digit number with both digits odd}\}$ ,*
- Set  $Q = \{x: x \text{ is a prime number}\}$  and*
- Set  $R = \{x: x \text{ is a multiple of three}\}$*

Carikan  $n(P \cup Q \cup R)'$ .

*Find  $n(P \cup Q \cup R)'$ .*

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

- 33 Eza membeli 3 kotak krayon dan 5 kotak pensel warna. Hamni pula membeli 4 kotak krayon dan 6 kotak pensel warna. Diberi bahawa setiap kotak krayon berharga RM8 manakala setiap kotak pensel warna berharga RM12. Antara berikut, persamaan matriks yang manakah adalah betul untuk mengira jumlah bayaran yang perlu dibuat oleh Eza, p, dan Hamni, q?

*Eza bought 3 boxes of crayons and 5 boxes of coloured pencils. Hamni, on the other hand, bought 4 boxes of crayons and 6 boxes of coloured pencils. Given that each box of crayons costs RM8 while each box of coloured pencils costs RM12, which of the following matrix equations is correct to calculate the total payment made by Eza, p, and Hamni, q?*

A  $\begin{bmatrix} 3 & 5 \\ 4 & 6 \end{bmatrix} \begin{bmatrix} 12 \\ 8 \end{bmatrix} = \begin{bmatrix} p \\ q \end{bmatrix}$

B  $\begin{bmatrix} 3 & 5 \\ 4 & 6 \end{bmatrix} \begin{bmatrix} 8 \\ 12 \end{bmatrix} = \begin{bmatrix} p \\ q \end{bmatrix}$

C  $\begin{bmatrix} 3 & 4 \\ 5 & 6 \end{bmatrix} \begin{bmatrix} 8 \\ 12 \end{bmatrix} = \begin{bmatrix} p \\ q \end{bmatrix}$

D  $\begin{bmatrix} 3 & 4 \\ 5 & 6 \end{bmatrix} \begin{bmatrix} 12 \\ 8 \end{bmatrix} = \begin{bmatrix} p \\ q \end{bmatrix}$

- 34 Diberi bahawa  $p$  ialah suatu integer, cari semua nilai  $p$  yang memuaskan kedua-dua ketaksamaan  $6 - p \geq 3$  dan  $p > 1 - \frac{p}{2}$ .

*Given that  $p$  is an integer, find all values of  $p$  that satisfy both inequalities  $6 - p \geq 3$  and  $p > 1 - \frac{p}{2}$ .*

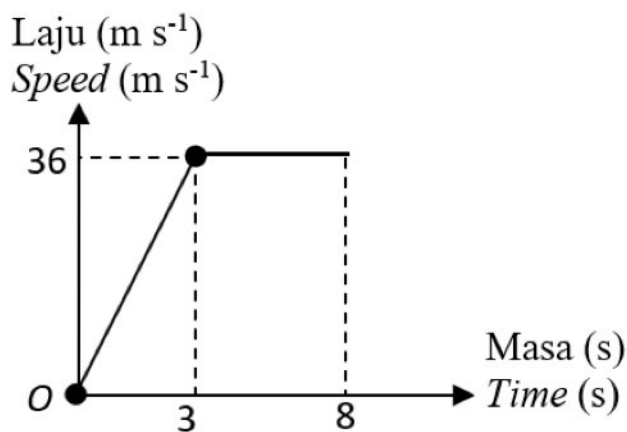
A 1, 2

B 0, 1, 2

C 0, 1, 2, 3

D 1, 2, 3

- 35 Rajah 10 menunjukkan graf laju-masa bagi satu zarah dalam tempoh 8 saat.  
*Diagram 10 shows the speed-time graph of a particle for a period of 8 seconds.*



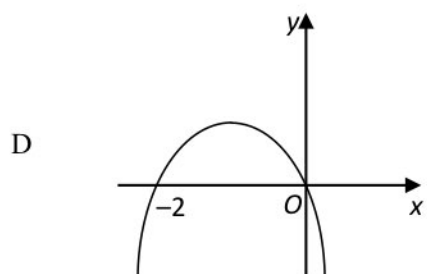
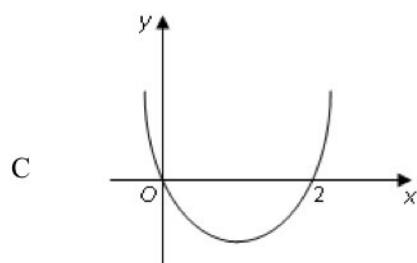
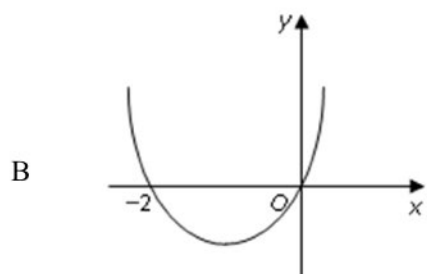
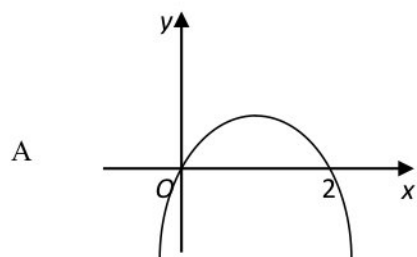
Rajah 10  
*Diagram 10*

Cari laju purata zarah itu, dalam  $\text{m s}^{-1}$ , bagi seluruh perjalanan itu.  
*Find the average speed, in  $\text{m s}^{-1}$ , the particle for the whole journey.*

- A 22.50
- B 29.25
- C 31.50
- D 36.00

36 Graf manakah yang mewakili  $y = 2x - x^2$  ?

*Which graph represents  $y = 2x - x^2$  ?*



- 37 Diberi bahawa  $R$  berubah secara langsung dengan kuasa tiga  $S$  dan secara songsang dengan punca kuasa dua  $T$ . Cari hubungan antara  $R$ ,  $S$  dan  $T$ .

*It is given that  $R$  varies directly as the cube of  $S$  and inversely as the square root of  $T$ . Find the relation between  $R$ ,  $S$  and  $T$ .*

A  $R \propto \frac{S^3}{\sqrt{T}}$

B  $R \propto \frac{\sqrt{S}}{T^3}$

C  $R \propto \frac{\sqrt{T}}{S^3}$

D  $R \propto \frac{S^2}{T^2}$

- 38 Asri hendak memotong sekeping kad menjadi beberapa segi empat tepat. Diberi bilangan segi empat tepat,  $B$ , berubah secara songsang dengan panjang,  $p$  cm, dan lebar,  $l$  cm, setiap segi empat tepat itu. Diberi  $B = 2$  apabila  $p = 9$  dan  $l = 6$ . Hitung nilai  $B$  apabila  $p = 3$  dan  $l = 2$ .

*Asri wants to cut a piece of cardboard into several rectangles. The number of rectangles,  $B$ , varies inversely with the length,  $p$  cm, and the width,  $l$  cm, of each rectangle. Given that  $B=2$  when  $p=9$  and  $l=6$ , calculate the value of  $B$  when  $p=3$  and  $l=2$ .*

A 15

B 16

C 20

D 18

- 39 Diberi matriks  $A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{pmatrix}$ . Apakah peringkat matriks  $A$ ?

*Given the matrix  $A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{pmatrix}$ . What is the order of matrix  $A$ ?*

A  $3 \times 3$

B  $2 \times 3$

C  $3 \times 2$

D  $2 \times 2$

- 40 Diberi  $A = \begin{pmatrix} 2 & 1 \\ 3 & 4 \end{pmatrix}$  dan  $B = \begin{pmatrix} 1 & 2 \\ 0 & 5 \end{pmatrix}$ . Cari unsur pada baris pertama lajur kedua bagi matriks  $AB$ .

*Given  $A = \begin{pmatrix} 2 & 1 \\ 3 & 4 \end{pmatrix}$  and  $B = \begin{pmatrix} 1 & 2 \\ 0 & 5 \end{pmatrix}$ . Find the element in the first row and second column of matrix  $AB$ .*

- A 7
- B 8
- C 9
- D 10

**KERTAS PEPERIKSAAN TAMAT**