

NOMBOR DAN OPERASI

- 1 $a^m \times a^n = a^{m+n}$
- 2 $a^m \div a^n = a^{m-n}$
- 3 $(a^m)^n = a^{mn}$
- 4 $a^{\frac{1}{n}} = \sqrt[n]{a}$
- 5 $a^{\frac{m}{n}} = (a^m)^{\frac{1}{n}} = \left(a^{\frac{1}{n}}\right)^m$
- 6 $a^{\frac{m}{n}} = \sqrt[n]{a^m} = \left(\sqrt[n]{a}\right)^m$
- 7 Faedah mudah, $I = Prt$
- 8 Nilai matang, $MV = P \left(1 + \frac{r}{n}\right)^{nt}$
- 9 Jumlah bayaran balik, $A = P + Prt$
- 10 Premium = $\frac{\text{Nilai muka polisi}}{\text{RMx}} \times (\text{Kadar premium per RMx})$
- 11 Jumlah insurans yang harus dibeli = $\left(\frac{\text{Peratusan}}{\text{ko-insurans}}\right) \times \left(\frac{\text{Nilai boleh}}{\text{insurans harta}}\right)$

PERKAITAN DAN ALGEBRA

- | | |
|---|---|
| <ol style="list-style-type: none"> 1 Jarak / Distance
 $= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ Titik tengah / Midpoint,
 2 $(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
 3 Laju purata = $\frac{\text{Jumlah jarak}}{\text{Jumlah masa}}$ | <ol style="list-style-type: none"> 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 $m = -\frac{\text{pintasan-y}}{\text{pintasan-x}}$ |
|---|---|

SUKATAN DAN GEOMETRI

- 1 Teorem Pythagoras, $c^2 = a^2 + b^2$
- 2 Hasil tambah sudut pedalaman polygon $= (n - 2) \times 180^\circ$
- 3 Lilitan bulatan $= \pi d = 2\pi r$
- 4 Luas bulatan $= \pi r^2$
- 5 $\frac{\text{Panjang lengkok}}{2\pi r} = \frac{\theta}{360^\circ}$
- 6 $\frac{\text{Luas sektor}}{\pi r^2} = \frac{\theta}{360^\circ}$
- 7 Luas layang $= \frac{1}{2} \times \text{hasil darab panjang dua pepenjuru}$
- 8 Luas trapezium $= \frac{1}{2} \times \text{hasil tambah dua sisi selari} \times \text{tinggi}$
- 9 Luas permukaan silinder $= 2\pi r^2 + 2\pi rt$
- 10 Luas permukaan kon $= \pi r^2 + \pi rs$
- 11 Luas permukaan sfera $= 4\pi r^2$
- 12 Isi padu prisma $= \text{luas keratan rentas} \times \text{tinggi}$
- 13 Isi padu silinder $= \pi r^2 t$
- 14 Isi padu kon $= \frac{1}{3} \pi r^2 t$
- 15 Isi padu sfera $= \frac{4}{3} \pi r^3$
- 16 Isi padu piramid $= \frac{1}{3} \times \text{luas tapak} \times \text{tinggi}$
- 17 Faktor skala, $k = \frac{PA'}{PA}$
- 18 Luas imej $= k^2 \times \text{luas objek}$

STATISTIK DAN KEBARANGKALIAN

$$1 \quad \text{Min, } \bar{x} = \frac{\sum x}{N}$$

$$2 \quad \text{Min, } \bar{x} = \frac{\sum fx}{f}$$

$$3 \quad \text{Varians, } \sigma^2 = \frac{\sum (x - \bar{x})^2}{N} = \frac{\sum x^2}{N} - \bar{x}^2$$

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

$$5 \quad \text{Sisihan piawai, } \sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{N}} = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2}$$

$$6 \quad \text{Sisihan piawai, } \sigma = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}} = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2}$$

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

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

Jawab semua soalan

1. Bundarkan 20 693 betul kepada tiga angka bererti.
Round off 20 693 to three significant figures correctly.

A 206
B 207
C 20 600
D 20 700

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

A $1050 = 1.05 \times 10^{-3}$
B $0.75 = 7.5 \times 10^1$
C $0.089 = 8.9 \times 10^{-1}$
D $2160 = 2.16 \times 10^3$

3. Diberi suatu jujukan nombor 21, 34, 47, x , 73, 86, ...
Tentukan nilai x .
Given the number sequence 21, 34, 47, x , 73, 86, ...
Determine the value of x .

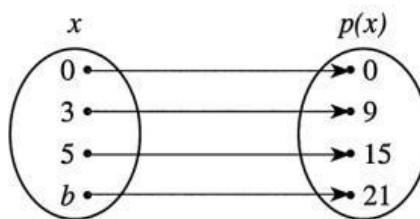
A 56
B 58
C 60
D 62

4. Harga satu tiket bas ialah RM3. Jika seorang pelajar membeli k keping tiket, ungkapan algebra yang mewakili jumlah harga ialah ...
The price of a bus ticket is RM3. If a student buys k pieces of bus tickets, the algebraic expression that represents the total cost is ...

A $3 + k$
B $3k$
C $k - 3$
D $3 \div k$

5. Rajah 1 menunjukkan satu fungsi. Nyatakan nilai b .

Diagram 1 shows a function. State the value of b .



Rajah 1

Diagram 1

- A 7
B 8
C 9
D 10
6. Diberi $\frac{p}{3} = \frac{5p-1}{\sqrt{n}}$, ungkapkan n dalam sebutan p .

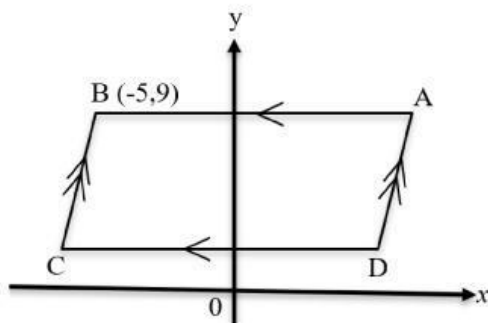
Given that $\frac{p}{3} = \frac{5p-1}{\sqrt{n}}$, express n in term of p .

- A $\frac{3(5p-1)^2}{p}$
B $9\left(\frac{5p-1}{p}\right)$
C $\frac{3(5p^2-1)^2}{p^2}$
D $9\left(\frac{5p-1}{p}\right)^2$

7. Rajah 2 menunjukkan segi empat selari $ABCD$ pada suatu satah Cartes. AB adalah selari dengan paksi- x . Persamaan garis lurus AD ialah $\frac{x}{7} - \frac{y}{14} = 1$.

Diagram 2 shows a parallelogram $ABCD$ on a Cartesian plane. AB is parallel to the x -axis.

The equation of straight line AD is $\frac{x}{7} - \frac{y}{14} = 1$.



Rajah 2

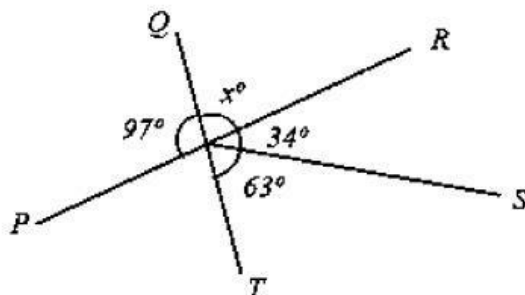
Diagram 2

Cari persamaan bagi garis lurus BC .

Find the equation of the straight line BC .

- A $y = 2x + 19$
- B $y = -2x + 15$
- C $y = -2x - 19$
- D $y = 2x + 15$

8. Dalam Rajah 3, PR dan QT adalah garis lurus.
In the Diagram 3, PR and QT are straight lines.



Rajah 3

Diagram 3

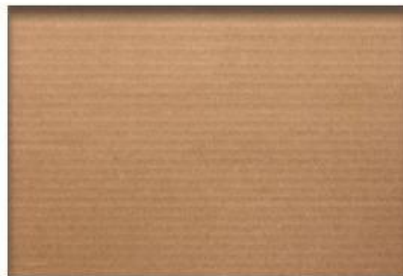
Antara yang berikut, yang manakah pernyataan yang betul?

Which of the following is the correct statement?

- A** $x^\circ = 90^\circ$ ialah bersudut tegak
 $x^\circ = 90^\circ$ is a right angled
- B** $x^\circ + 34^\circ + 97^\circ$ ialah sudut refleks
 $x^\circ + 34^\circ + 97^\circ$ is a reflex angle
- C** $x^\circ + 34^\circ + 63^\circ$ ialah sudut putaran lengkap
 $x^\circ + 34^\circ + 63^\circ$ is a full rotation angle
- D** $x^\circ + 34^\circ + 63^\circ + 97^\circ$ ialah sudut garis lurus
 $x^\circ + 34^\circ + 63^\circ + 97^\circ$ is an angle on a straight line

9. Rajah 4 menunjukkan sekeping kadbod yang berbentuk segi empat tepat. Lebar kadbod itu ialah 24 cm dan luasnya ialah 960 cm^2 .

Diagram 4 shows a piece of cardboard is in rectangular shape. The width of the cardboard is 24 cm and the area is 960 cm^2 .



Rajah 4

Diagram 4

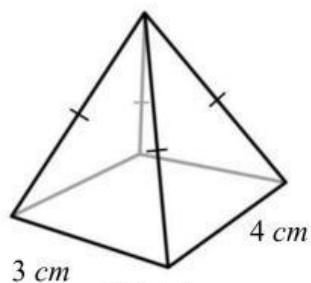
Cari perimeter dalam cm, bagi kadbod itu.

Find the perimeter in cm, for that cardboard.

- A 68
- B 120
- C 128
- D 160

10. Rajah 5 menunjukkan sebuah pepejal berbentuk piramid tegak dengan tapak segi empat tepat terletak pada suatu satah mengufuk. Antara berikut, yang manakah adalah pelan bagi pepejal itu?

Diagram 5 shows a solid right pyramid with a rectangular base lying on a horizontal plane. Which of the following is the plan of the solid?



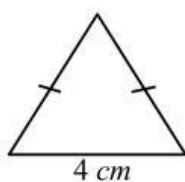
Rajah 5

Diagram 5

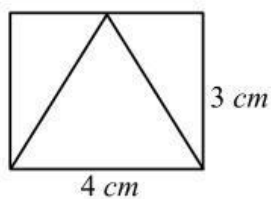
A



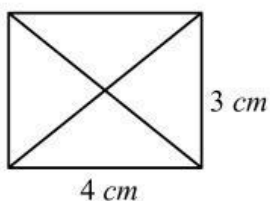
B



C



D



11. Rajah 6 menunjukkan tujuh keping kad abjad di dalam sebuah kotak.

Diagram 6 shows seven alphabet cards in a box.



Rajah 6

Diagram 6

Sekeping kad dipilih secara rawak daripada kotak ini. Cari kebarangkalian bahawa sekeping kad berharuf vokal dipilih.

A card is randomly selected from the box. Find the probability that a card with a vowel letter is chosen.

- A $\frac{1}{7}$
 B $\frac{2}{7}$
 C $\frac{3}{7}$
 D $\frac{4}{7}$

12. Diberi $5^n \times 5^{2+n} = 5^{10}$, cari nilai n .

Given $5^n \times 5^{2+n} = 5^{10}$, find the value of n .

- A 4
 B 6
 C 10
 D 12

13. Permudahkan $\frac{2m^4n^5 \times 5m^3n^2}{2m^2}$.

Simplify $\frac{2m^4n^5 \times 5m^3n^2}{2m^2}$.

- A $5mn^7$
 B $5m^5n^7$
 C $5m^6n^7$
 D $5m^9n^7$

14. Hitungkan $1324_6 - 245_6$.
Calculate $1324_6 - 245_6$.
- A 1035_6
B 1079_6
C 1121_6
D 1143_6
15. Apakah nilai bagi digit 5, dalam asas sepuluh, dalam nombor 1503_7 ?
What is the value of digit 5, in base ten, in the number of 1503_7 ?
- A 49
B 70
C 245
D 1715
16. Pada suatu bulan tertentu, Kayla menerima gaji sebanyak RM1 800 dan komisen sebagai ejen jualan langsung sebanyak RM697.60. Perbelanjaan tetap dan tidak tetap Kayla pada bulan itu masing-masing ialah RM1 650 dan RM870.90.
Hitung aliran tunai Kayla pada bulan itu.
In a particular month, Kayla received a salary of RM1 800 and a commission of RM697.60 as a direct sales agent. Kayla's fixed and non-fixed expenses for the month were RM1 650 and RM870.90 respectively.
Calculate the cash flow of Kayla for that month.
- A Aliran tunai negatif RM233.30
Negative cash flow RM233.30
B Aliran tunai negatif RM23.30
Negative cash flow RM23.30
C Aliran tunai positif RM23.30
Positive cash flow RM23.30
D Aliran tunai positif RM233.30
Positive cash flow RM 233.30

17. Apakah langkah pertama dalam proses pengurusan kewangan?
What is the first step in the financial management process?
- A Melabur wang
Investing Money
 - B Merancang kewangan
Financial Planning
 - C Membayar hutang
Repaying Debt
 - D Membeli aset
Purchasing Assets
19. Encik Ashraf membeli sebuah motorsikal berharga RM9 500. Beliau juga membeli insurans motosikal berharga RM600 yang dikenakan cukai perkhidmatan 8%. Cukai jualan motosikal ialah 10%. Berapakah jumlah keseluruhan yang perlu dibayar oleh Encik Ashraf?
Mr Ashraf buys a motorcycle priced at RM9 500. He also purchases motorcycle insurance worth RM600 which is subject to an 8% service tax. The sales tax on the motorcycle is 10%. How much is the total amount Mr Ashraf need to pay?
- A RM10 450
 - B RM10 598
 - C RM11 098
 - D RM11 450
23. Sebuah bentangan mempunyai bentuk yang kongruen bagi 2 segi empat sama dan 4 segi empat tepat. Setelah bentangan dilipat menjadi sebuah bentuk geometri, berapakah jumlah muka dan bucu bentuk geometri tersebut?
A net consists of 2 congruent triangles and 4 rectangles. After the net is folded to form a geometrical shape, what is the total number of faces and vertices of the geometrical shape?
- A 8 muka, 8 bucu

8 faces, 8 vertices

- B** 6 muka, 6 bucu
6 faces, 6 vertices

23. Sebuah bentangan mempunyai bentuk yang kongruen bagi 2 segi empat sama dan 4 segi empat tepat. Setelah bentangan dilipat menjadi sebuah bentuk geometri, berapakah jumlah muka dan bucu bentuk geometri tersebut?

A net consists of 2 congruent triangles and 4 rectangles. After the net is folded to form a geometrical shape, what is the total number of faces and vertices of the geometrical shape?

- A** 8 muka, 8 bucu
8 faces, 8 vertices
- B** 6 muka, 6 bucu
6 faces, 6 vertices
- C** 6 muka, 8 bucu
6 faces, 8 vertices
- D** 8 muka, 6 bucu
8 faces, 6 vertices

24. Data yang manakah merupakan data numerik?

Which data is numeric data?

- A** Jenis kenderaan
Type of Vehicle
- B** Jantina
Gender
- C** Warna baju
Clothing Colour
- D** Berat badan
Body Weight

25. Lima keping kad berlabel dengan huruf “ R, A, J, I, N ” dimasukkan ke dalam sebuah kotak. Dua keping kad dikeluarkan secara rawak dari kotak itu satu demi satu tanpa pemulangan.

Antara berikut, yang manakah **bukan** kesudahan yang mungkin bagi peristiwa itu?

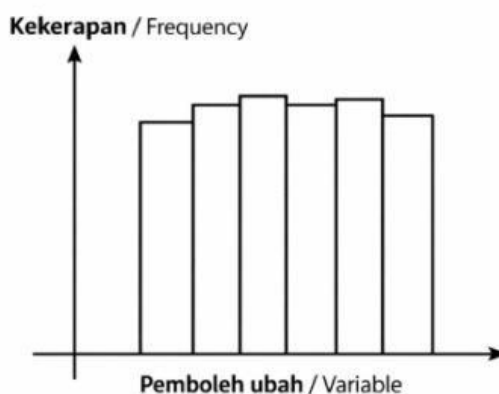
Five cards labelled with the letters “ R, A, J, I, N ” are put into a box. Two cards are taken out at random from the box one by one without replacement.

*Which of the following is **not** the possible outcome for the event?*

- A (A, J)
- B (J, J)
- C (I, N)
- D (R, A)

26. Rajah 8 menunjukkan sebuah histogram.

Diagram 8 shows a histogram.



Rajah 8

Diagram 8

Apakah bentuk taburan bagi data yang diwakili oleh histogram?

What is the distribution shape of the data represented by the histogram?

- A Pencong ke kanan / *Skew to the right*
- B Pencong ke kiri / *Skew to the left*
- C Bentuk loceng / *Bell-shaped*