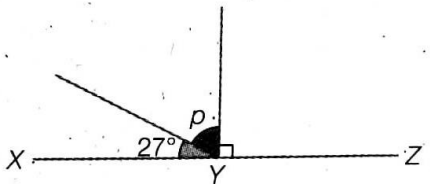


Jawab **semua** soalan.
Answer **all** questions.

1. $\frac{2}{3} \times 1.75 - \frac{5}{6} =$

- A. $\frac{1}{3}$
- B. $\frac{1}{6}$
- C. 0.2
- D. 0.25

2. Dalam Rajah 1 di bawah, XYZ adalah garis lurus.
In Diagram 1 below, XYZ is a straight line.



Rajah 1 / Diagram 1

Cari nilai bagi p .
Find the value of p .

- A. 27°
- B. 63°
- C. 90°
- D. 153°

3. Selesaikan
Solve

$$\frac{y}{5} - 4 \leq 2$$

- A. $y \leq 14$
- B. $y \geq 14$
- C. $y \geq 22$
- D. $y \leq 30$

4. Permudahkan
Simplify

$$\frac{15m^3n^2 \times 6m^4n}{10m^2n^4}$$

- A. $\frac{9m^5}{n}$
- B. $\frac{9m^7}{n}$
- C. $\frac{3m^5}{n^2}$
- D. $\frac{3m^7}{n^2}$

5. Selesaikan persamaan linear serentak

$$\frac{x}{3} - 2y = 12 \text{ dan } 5x + 3y = 15.$$

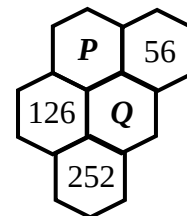
Solve the simultaneous linear equations

$$\frac{x}{3} - 2y = 12 \text{ and } 5x + 3y = 15.$$

- A. $x = 2, y = 1$
- B. $x = 3, y = 6$
- C. $x = 4, y = -2$
- D. $x = 6, y = -5$

6. Rajah 2 menunjukkan sebahagian daripada daripada Segitiga Paskal. Cari nilai bagi P dan Q .

Diagram 2 shows a part of a Pascal's Triangle. Find the value of P and Q .

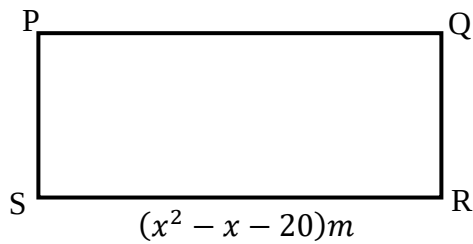


Rajah 2 / Diagram 2

- A. $P = 70, Q = 126$
- B. $P = 126, Q = 70$
- C. $P = 60, Q = 116$
- D. $P = 116, Q = 60$

7. Rajah 3 menunjukkan plot tanah berbentuk segiempat tepat.

Diagram 3 shows a rectangular plot of land.



Rajah 3 / Diagram 3

Diberi luas tanah adalah $(3x^2 - 15x)m^2$.

Hitung panjang, dalam m , sisi PS.

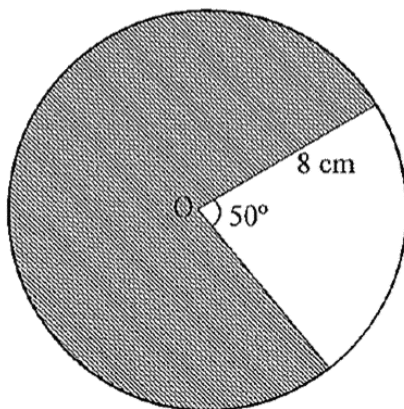
Given the area of the land is

$(3x^2 - 15x)m^2$. Calculate the length, in m , of side PS.

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

8. Rajah 4 menunjukkan sebuah bulatan berpusat di O.

Diagram 4 shows a circle with centre O.



Rajah 4 / Diagram 4

Diberi jejari bulatan ialah 8 cm, cari perimeter kawasan berlorek betul kepada dua tempat perpuluhan.

Given that the radius of the circle is 8cm. find the perimeter of the shaded region correct to two decimal places.

[Guna / Use $\pi = \frac{22}{7}$]

- A. 40.12
 B. 43.30
 C. 59.30
 D. 63.42

9. Diberi bahawa $2rt - t = \frac{w}{3t}$.

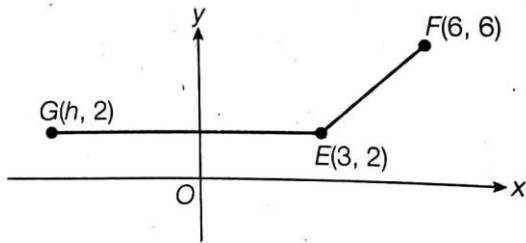
Ungkapkan t dalam sebutan r dan w .

Given that $2rt - t = \frac{w}{3t}$. Express t in terms of r and w .

- A. $t = \sqrt{\frac{w}{6r-3}}$
 B. $t = \sqrt{\frac{w}{6r-1}}$
 C. $t = \sqrt{\frac{3w}{6r-3}}$
 D. $t = \sqrt{\frac{3w}{6r-1}}$

10. Rajah 5 menunjukkan garis lurus EF dan EG pada satah Cartesan.

Diagram 5 shows a straight-line EF and EG on a Cartesian plane.

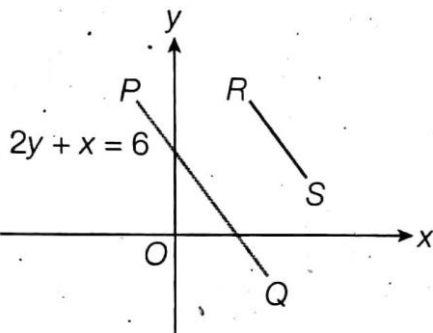


Rajah 5 / Diagram 5

Diberi $EG = 2EF$, cari nilai bagi h .

Given $EG = 2EF$, find the value of h .

- A. 7
B. 2
C. -2
D. -7
11. Rajah 6 menunjukkan dua garis lurus selari dilukis pada satu satah Cartesan.
Diagram 6 shows two parallel straight lines drawn on a Cartesian plane.



Rajah 6 / Diagram 6

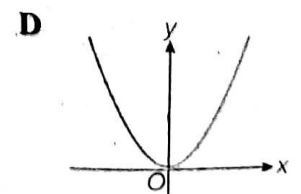
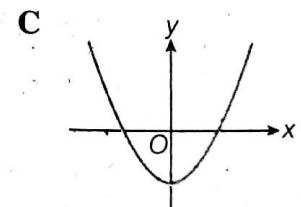
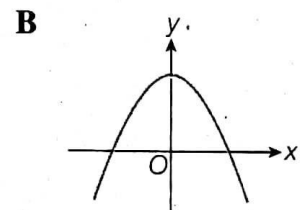
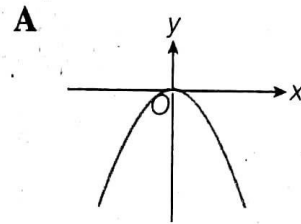
Manakah antara yang berikut adalah persamaan bagi garis lurus RS?

Which of the following is a possible equation of straight-line RS?

- A. $y + \frac{1}{2}x = 10$
B. $y + 2x = 10$
C. $y - 2x = 10$
D. $y - \frac{1}{2}x = 10$

12. Manakah antara yang berikut adalah graf fungsi bagi $y = -x^2$?

Which of the following is the graph of of function $y = -x^2$?



13. Rajah 7 menunjukkan satu set data.
Diagram 7 shows a set of data.

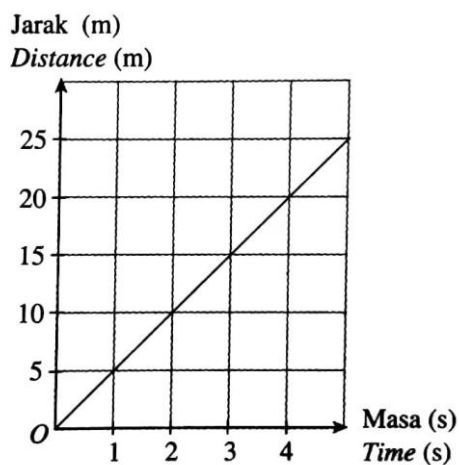
2	8	4	8
8	3	3	9
4	2	9	8

Rajah 7 / Diagram 7

Cari beza antara mod dan median.

Find the difference between the mode and the median.

- A. 2
B. 3
C. 5
D. 7
14. Rajah 8 menunjukkan graf jarak – masa bagi gerakan suatu zarah.
Diagram 8 shows the distance – time graph for the motion of a particle.

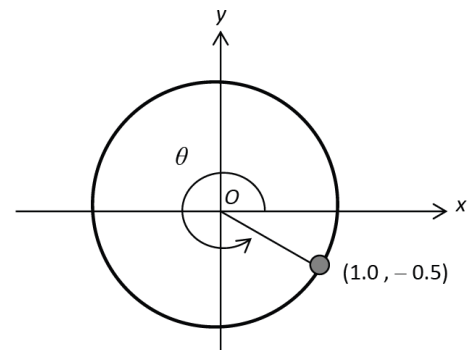


Rajah 8 / Diagram 8

Graf itu menunjukkan zarah itu
The graph shows that the particle

- A. bergerak semakin laju
is moving faster.
B. bergerak semakin perlahan.
is moving slower.
C. bergerak dengan laju seragam.
is moving with a constant speed.
D. berada dalam keadaan rehat.
is at rest.

15. Rajah 9, O ialah pusat bagi satu bulatan.
Diagram 9, O is the centre of a circle.



Rajah 9 / Diagram 9

Nilai bagi $\tan \theta$ ialah

Value of $\tan \theta$ is

- A. 0.8
B. -0.5
C. -0.75
D. -1.33
16. Permudahkan
Simplify

$$\frac{7^6 \times 7^4}{49}$$

- A. 7^2
B. 7^4
C. 7^6
D. 7^8

17. Puan Marina membuat pinjaman peribadi sebanyak RM 18 000 dari Bank Putra Berjaya dengan kadar faedah 4% setahun. Tempoh bayaran balik adalah selama 7 tahun. Berapakah ansuran bulanan yang akan dibayar oleh Puan Marina?

Puan Marina makes a personal loan of RM 18 000 from Bank Putra Berjaya with interest rate 4% per annum. The refund period is 7 years. What is the monthly installment to be paid by Puan Marina?

- A. RM 270.29
B. RM 274.29
C. RM 280.00
D. RM 284.29

18. Jadual 1 menunjukkan markah Matematik dan kekerapan markah dalam peperiksaan percubaan SPM.

Table 1 shows the Mathematic's mark and frequency of marks in the SPM trial examination.

Markah Marks	75	85	80	90	95
Kekerapan Frequency	m	7	6	4	5

Jadual 1 / Table 1

Jika min bagi markah ialah 85.4, cari nilai m .

If the mean of the mark is 85.4, find the value of m .

- A. 1
B. 2
C. 3
D. 4

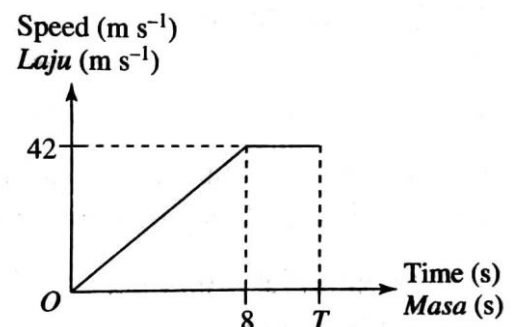
19. Pak Din mempunyai 30 ekor haiwan ternakan. Terdapat 10 ekor lembu, beberapa ekor kambing dan beberapa ekor ayam. Kebarangkalian memilih seekor kambing ialah $\frac{2}{5}$. Jika seekor haiwan ternakan dipilih secara rawak daripada kumpulan itu, cari kebarangkalian bahawa haiwan itu **bukan** seekor ayam.

*Pak Din has 30 livestock. There were 10 cows, some goats, and some chickens. The probability of choosing a goat is $\frac{2}{5}$. If a livestock is randomly selected from the group, find the probability that the animal is **not** a chicken.*

- A. $\frac{11}{15}$
B. $\frac{2}{3}$
C. $\frac{3}{5}$
D. $\frac{4}{15}$

20. Graf laju – masa di bawah menunjukkan gerakan sebuah motosikal untuk tempoh T saat.

The speed – time graph shows the motion of a motorcycle for a period of T seconds.



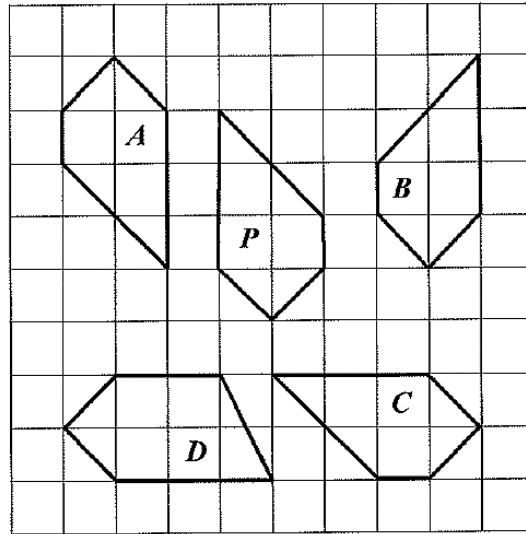
Jumlah jarak yang dilalui oleh motosikal itu ialah 336 m. Hitung nilai T .

The total distance travelled by the motorcycle is 336 m. Calculate the value of T .

- A. 4
B. 9
C. 12
D. 14

- 21 Rajah 10 menunjukkan lima pentagon yang dilukis pada grid segiempat sama.

Diagram 10 shows five pentagons drawn on square grids.



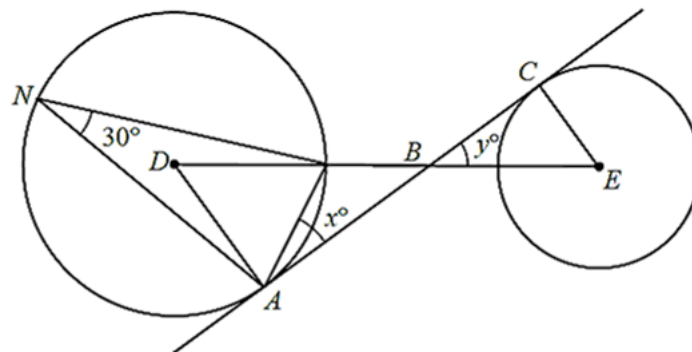
Rajah 10 / Diagram 10

Antara pentagon **A**, **B**, **C** dan **D**, yang manakah tidak kongruen dengan pentagon P?

*Which of the pentagon, **A**, **B**, **C** and **D**, is not congruent with pentagon P?*

- 22 Dalam Rajah 11, ABC ialah tangen sepunya kepada bulatan berpusat D dan E. DBE ialah garis lurus. AD dan CE ialah jejari bulatan.

In Diagram 11, ABC is a common tangent to the circles with centre D and E. DBE is a straight line. AD and CE is the radius of the circles.



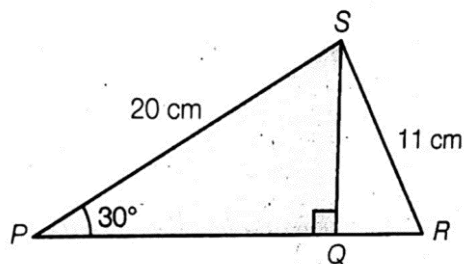
Rajah 11 / Diagram 11

Cari nilai $x^\circ + y^\circ$.

Find the value of $x^\circ + y^\circ$.

- | | |
|----------------------|----------------------|
| A. 60° | C. 50° |
| B. 54° | D. 30° |

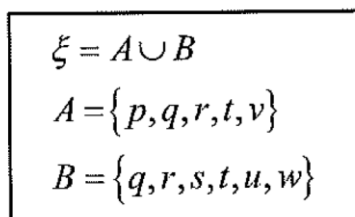
23. Dalam Rajah 12, PQR adalah garis lurus.
In Diagram 12, PQR is a straight line.



Rajah 12 / Diagram 12

Cari
Find

- A. $24^\circ 37'$
B. $28^\circ 16'$
C. $31^\circ 15'$
D. $35^\circ 44'$
24. Rajah 13 menunjukkan maklumat mengenai set A dan set B.
Diagram 13 shows an information on set A and set B.



Rajah 13 / Diagram 13

Berdasarkan maklumat yang diberi, pernyataan manakah yang **benar**?
Based on the information given, which of the following statement is **true**?

- A. $n(A \cup B) = 11$
B. $B \subset A$
C. $A' \cup B = \{s, u, w\}$
D. $(A \cup B)' = \emptyset$

25. Cari punca-punca bagi persamaan kuadratik $(4p - 1)^2 = 4p^2$.
Find the roots of the quadratic equation $(4p - 1)^2 = 4p^2$.

- A. $p = -\frac{1}{2}, p = -\frac{1}{6}$
B. $p = -\frac{1}{2}, p = \frac{1}{6}$
C. $p = -\frac{1}{6}, p = \frac{1}{2}$
D. $p = \frac{1}{6}, p = \frac{1}{2}$

26. Diberi ketinggian Menara Kuala Lumpur adalah 421 meter. Tukarkan 421_{10} kepada asas tujuh.

Given that the height of Kuala Lumpur Tower is 421 metres. Convert 421_{10} to base seven.

- A. 1141_7
B. 1411_7
C. 1114_7
D. 4111_7

- 27.

"Jika $m = -7$, maka $m^2 = 49$ "

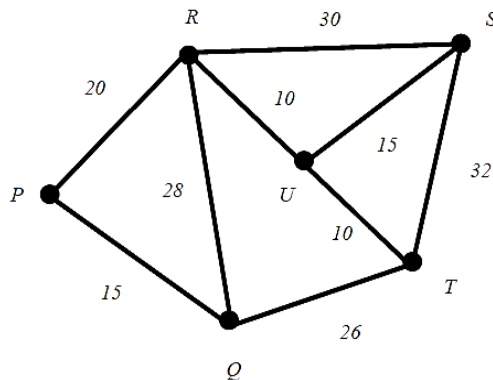
"If $m = -7$, then $m^2 = 49$ "

Nyatakan antejadian bagi implikasi di atas.

State the antecedent in the above implication.

- A. $m = 7$
B. $m = -7$
C. $m^2 = -49$
D. $m^2 = 49$

28. Rajah 14 di bawah menunjukkan suatu graf tak terarah dan berpemberat. Diagram 14 below shows an undirected



Rajah 14 / Diagram 14

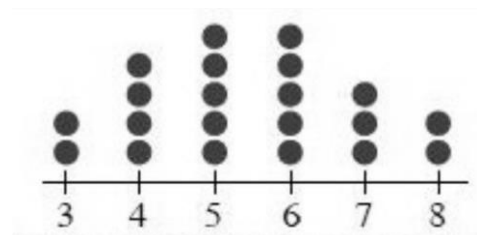
Berapakah jumlah nilai pemberat yang minimum bagi satu pokok?

What is the minimum amount of weighting value for one tree?

- A. 60
B. 70
C. 91
D. 100
29. Titik manakah yang memuaskan ketaksamaan linear $y \geq 6 - x$ dan $y \geq \frac{1}{2}x + 1$? Which point satisfies the linear inequalities $y \geq 6 - x$ and $y \geq \frac{1}{2}x + 1$?
- A. (1, 3)
B. (2, 1)
C. (3, 4)
D. (6, 2)

30. Satu tinjauan telah dijalankan ke atas 21 orang pelajar dari Universiti Putra Malaysia tentang purata jam ulangkaji yang digunakan dalam sehari semasa minggu peperiksaan. Berikut adalah plot titik yang mewakili data tersebut.

A survey was conducted on 21 students from Universiti Putra Malaysia about the average hours of revision used in a day during the examination week. Here is a plot of points representing the data.



Masa (jam) / Time (hours)

Hitung beza purata jam bagi tempoh masa terpanjang dan tempoh masa terpendek.

Calculate the difference of the average hours for the longest time period and the shortest time period.

- A. 2
B. 3
C. 4
D. 5

31. x berubah secara songsang dengan y dan punca kuasa dua z . Hubungan antara pembolehubah x , y dan z boleh diwakili dengan persamaan.

x varies inversely as y and the square roots of z . The relationship between variables x , y and z can be represented by the equation.

- A. $x = \frac{1}{y\sqrt{z}}$
 B. $x = \frac{1}{\sqrt{yz}}$
 C. $x = \frac{k}{y\sqrt{z}}$
 D. $x = \frac{k}{\sqrt{yz}}$

32. Puan Saliha menerima pendapatan aktif sebanyak RM 6850 dan pendapatan pasif sebanyak RM 1500 dalam sebulan.

Dia mempunyai perbelanjaan tetap sebanyak RM 2850 dan perbelanjaan tidak tetap sebanyak RM 980 setiap bulan. Hitung aliran tunai bulanan Puan Saliha.

Puan Saliha received an active income of RM 6850 and a passive income of RM 1500 in a month. She has the fixed expenses of RM 2850 and the variable expenses of RM 980 every month. Calculate Puan Saliha's monthly cash flow.

- A. RM 3020
 B. RM 4810
 C. RM 1520
 D. RM 4520

33. Diberi
 Given

$$2 \begin{pmatrix} 2 & m \\ -1 & 9 \end{pmatrix} - \begin{pmatrix} 0 & -3 \\ 4 & 4 \end{pmatrix} = \begin{pmatrix} 4 & 11 \\ n & 14 \end{pmatrix}$$

Cari nilai m dan n .

Find the value of m and n .

- A. $m = 2, n = 6$
 B. $m = 4, n = -6$
 C. $m = 8, n = 10$
 D. $m = 6, n = -6$

34. Diberi persamaan matriks
It is given that matrix equation is

$$3 \begin{pmatrix} 3 & 0 \\ 1 & -1 \end{pmatrix} + M = \begin{pmatrix} 7 & 2 \\ 4 & 5 \end{pmatrix}$$

Cari nilai M .

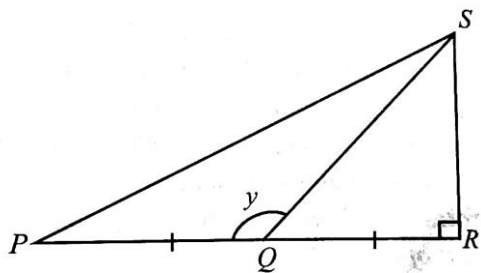
Calculate the value of M .

- A. $\begin{pmatrix} 2 & -2 \\ 1 & 8 \end{pmatrix}$
 B. $\begin{pmatrix} 2 & 2 \\ 1 & -8 \end{pmatrix}$
 C. $\begin{pmatrix} -2 & 2 \\ 1 & -8 \end{pmatrix}$
 D. $\begin{pmatrix} -2 & 2 \\ 1 & 8 \end{pmatrix}$

- 35 Berikut adalah jenis – jenis insurans am, kecuali
Below are the types of general insurance, except

- A. Insurance Kemalangan
Accident Insurance
- B. Insurans hayat
Life Insurance
- C. Insurans Perubatan
Medical Insurance
- D. Insurans Perjalanan
Travel Insurance

- 36 Rajah 15 menunjukkan segi tiga bersudut tegak PRS.
Diagram 15 shows a right – angled triangle PRS.



Rajah 15 / Diagram 15

Diberi $QS = 10$ cm dan $PQ = 6$ cm, cari nilai bagi $\sin y$.

Given $QS = 10$ cm and $PQ = 6$ cm, find the value of $\sin y$.

- A. $-\frac{4}{5}$
- B. $\frac{3}{5}$
- C. $\frac{17}{9}$
- D. $-\frac{1}{5}$

37. Jadual 2 menunjukkan pendapatan Puan Raisya.

Table 2 shows Puan Raisya's income.

Pendapatan Income	Nilai Value
Gaji Salary	RM 3 800 sebulan / per month
Elaun Allowance	RM 2 500 sebulan / per month
Derma Donations	RM 2 000 sebulan / per month

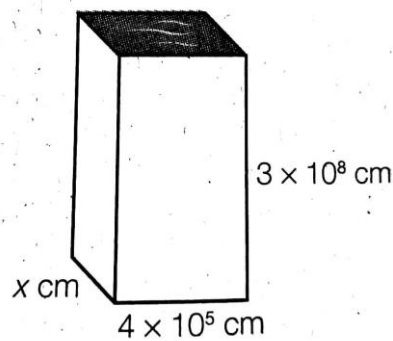
Jadual 2 / Table 2

RM 5 200 daripada pendapatan tahunan Puan Raisya dikecualikan cukai. Hitung pendapatan bercukai beliau.

RM 5 200 from Puan Raisya's annual income is exempted from tax. Calculate her taxable income.

- A. RM 35 900
- B. RM 38 400
- C. RM 63 000
- D. RM 68 400

38. Rajah 16 menunjukkan sebuah tangki berbentuk kuboid. Tangki tersebut dipenuhi dengan air.
Diagram 16 shows a tank in the shape of a cuboid. The tank filled with water.



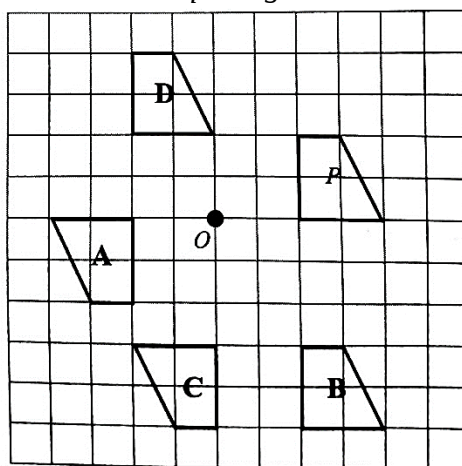
Rajah 16 / Diagram 16

Apabila $9 \times 10^{17} \text{ cm}^3$ air di dalam tangki telah digunakan, kedalaman air menjadi $2.1 \times 10^8 \text{ cm}$.
 Cari nilai bagi x .

*When $9 \times 10^{17} \text{ cm}^3$ of the water in the tank is used, the depth of the water becomes $2.1 \times 10^8 \text{ cm}$.
 Find the value of x .*

- A. 1.08×10^3
- B. 1.08×10^4
- C. 2.5×10^3
- D. 2.5×10^4

39. Rajah 17 di bawah menunjukkan lima corak yang dilukis pada grid segiempat sama.
Diagram 17 below shows five patterns on a square grid.



Rajah 17 / Diagram 17

Antara trapezium **A**, **B**, **C**, dan **D**, yang manakah merupakan imej bagi **P** dibawah suatu putaran 180° di pusat **O**?

*Which of the following **A**, **B**, **C**, and **D** is the image of **P** under a 180° rotation at the centre **O**?*

40. Antara gambar rajah Venn yang berikut, yang manakah mewakili set $A \cup (B \cap C)$?

Which of the following Venn Diagram represents set $A \cup (B \cap C)$?

