

Ujian Pertengahan Sesi Akademik (UPSA)

Skor

100

2 jam / 2 hours

Bahagian A [20 markah / marks]

1. Antara berikut, yang manakah satu jujukan?

Which of the following is a sequence?

- A 5, 10, 15, 30, ...
- B 5, 10, 20, 25, ...
- C 0.5, 0.8, 1.4, 1.6, ...
- D 0.5, 1.0, 2.0, 4.0, ...

2. Rajah di bawah menunjukkan pola bagi satu jujukan nombor.

The diagram below shows the pattern of a number sequence.

$10 - 3 = 7$
$10 - 2 = 8$
$10 - 1 = 9$
$10 - 0 = 10$

Apakah baris seterusnya dalam pola nombor itu?

What is the next line in the number pattern?

- A $10 - (-1) = 11$
- B $10 - 10 = 0$
- C $10 - 1 = 9$
- D $10 - 11 = -1$

3. Diberi jujukan nombor $1\frac{1}{4}, 2\frac{1}{2}, 3\frac{3}{4}, \dots$, cari sebutan ke-100.

Given the number sequence $1\frac{1}{4}, 2\frac{1}{2}, 3\frac{3}{4}, \dots$, find the 100th term.

- A 100
- B 110
- C 120
- D 125

4. Kembangkan ungkapan algebra yang berikut.

Expand the following algebraic expression.

$$\left(2a - \frac{1}{2}b\right)\left(3a - \frac{1}{2}b\right)$$

- A $6a^2 - \frac{5}{2}ab + \frac{1}{4}b^2$
- B $6a^2 + \frac{1}{2}ab + \frac{1}{4}b^2$
- C $6a^2 - \frac{1}{2}ab + \frac{1}{4}b^2$
- D $6a^2 + \frac{5}{2}ab - \frac{1}{4}b^2$

5. Faktorkan ungkapan algebra yang berikut.

Factorise the following algebraic expression.

$$e^2 - 14ef + 49f^2$$

- A $(e - 7f)(e + 7f)$
- B $(e + 7f)(e + 7f)$
- C $(e - 7f)(e - 7f)$
- D $(e - 14f)(e - 14f)$

6. Permudahkan ungkapan algebra yang berikut.

Simplify the following algebraic expression.

$$\frac{6x + 4y}{8xz} \times \frac{24z^2}{12x + 8y}$$

- A $\frac{3z}{2x^2}$
- B $\frac{3z}{2x}$
- C $\frac{3z^2}{2x}$
- D $\frac{2z}{3x}$

7. Diberi $4j = 6k - 10m$, ungkapkan k sebagai perkara rumus dalam bentuk termudah.
Given $4j = 6k - 10m$, express k as the subject of the formula in the simplest form.

A $k = \frac{2j + 10m}{3}$ C $k = \frac{4j + 5m}{3}$
B $k = \frac{2j + 5m}{3}$ D $k = \frac{4j + 10m}{6}$

8. Diberi $\frac{9}{5}x = 2y - \frac{3}{4}z$, hitung nilai z apabila $x = -15$ dan $y = -15$.

Given $\frac{9}{5}x = 2y - \frac{3}{4}z$, calculate the value of z when $x = -15$ and $y = -15$.

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

9. James membeli a botol air mineral dengan harga RM b sebotol. Dia menjual semua botol air mineral dengan harga RM c sebotol dan mengaut keuntungan sebanyak RM d . Ungkapkan a dalam sebutan b , c dan d .

James bought a bottle of mineral water for the price of RM b per bottle. He sold all the mineral water bottles at the price of RM c per bottle and earned a profit of RM d . Express a in terms of b , c and d .

A $a = \frac{d}{b - c}$ C $a = \frac{c}{b + d}$
B $a = \frac{d}{b + c}$ D $a = \frac{c}{b - d}$

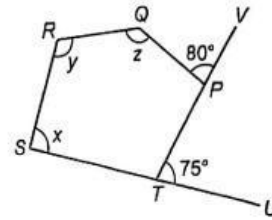
10. Huey Ting mempunyai RM p . Selepas membelanjakan RM $(q - 4)$ sehari selama 6 hari, dia masih mempunyai baki wang sebanyak RM15. Ungkapkan q dalam sebutan p .

Huey Ting has RM p . After spending RM $(q - 4)$ a day for 6 years, she still has a balance of RM15. Express q in terms of p .

A $q = \frac{p - 9}{6}$ C $q = \frac{p + 9}{3}$
B $q = \frac{p + 9}{6}$ D $q = \frac{p - 9}{3}$

11. Dalam rajah di bawah, STU dan TPV ialah garis lurus.

In the diagram below, STU and TPV are straight lines.



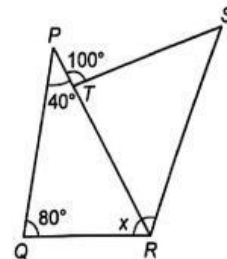
Cari nilai $x + y + z$.

Find the value of $x + y + z$.

A 315° C 335°
B 325° D 345°

12. Dalam di bawah, PTR ialah garis lurus dan $TR = TS$.

In the diagram below, PTR is a straight line and $TR = TS$.



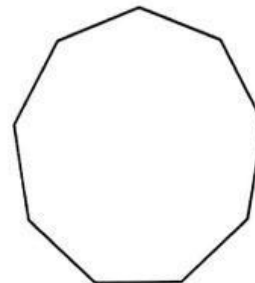
Cari nilai x .

Find the value of x .

A 100° C 120°
B 110° D 130°

13. Rajah di bawah menunjukkan sebuah nonagon sekata.

The diagram below shows a regular nonagon.

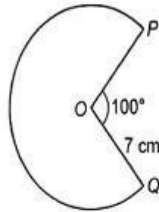


Hitung nilai setiap sudut pedalaman poligon tersebut.

Calculate the value of each of the interior angle of the polygon.

A 130° C 165°
B 140° D 172°

14. Rajah di bawah menunjukkan sektor bagi suatu bulatan berpusat O .
The diagram below shows a sector of a circle with centre O .

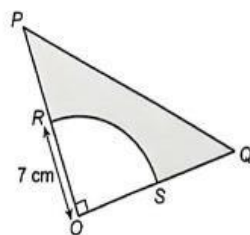


Hitung perimeter, dalam cm, seluruh rajah itu.

Calculate the perimeter, in cm, of the whole diagram.

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

- A $12\frac{2}{9}$ C $31\frac{7}{9}$
B $26\frac{2}{9}$ D $45\frac{7}{9}$
15. Dalam rajah di bawah, POQ ialah segi tiga bersudut tegak dan ROS ialah sektor bagi sebuah bulatan berpusat O . R dan S masing-masing ialah titik tengah OP dan OQ .
In the diagram below, POQ is a right-angled triangle and ROS is a sector of a circle with centre O . R and S are the midpoints of OP and OQ respectively.



Hitung luas, dalam cm^2 , kawasan yang berlorek.

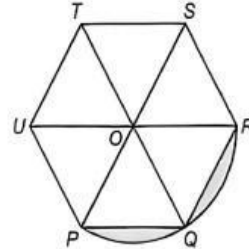
Calculate the area, in cm^2 , of the shaded region.

[Guna / Use $\pi = 3.142$]

- A 45.6
B 56.5
C 59.5
D 65.6

16. Dalam rajah di bawah, $PQRSTU$ ialah sebuah heksagon sekata dengan sisi 10 cm dan PQR ialah lengkok bagi sebuah bulatan berpusat O .

In the diagram below, $PQRSTU$ is a regular hexagon with sides of 10 cm and PQR is the arc of a circle with centre O .

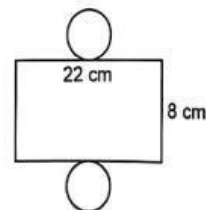


Hitung perimeter, dalam cm, kawasan yang berlorek.

Calculate the perimeter, in cm, of the shaded region.

[Guna / Use $\pi = 3.142$]

- A 20.95
B 30.95
C 40.95
D 49.95
17. Rajah di bawah menunjukkan bentangan bagi sebuah silinder.
The diagram below shows the net of a cylinder.



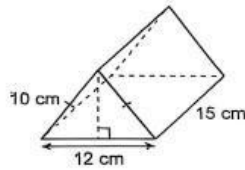
Hitung luas permukaan, dalam cm^2 , silinder itu.

Calculate the surface area, in cm^2 , of the cylinder.

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

- A 214.5
B 241.5
C 253
D 330

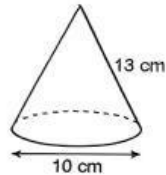
18. Rajah di bawah menunjukkan sebuah prisma tegak.
The diagram below shows a right prism.



Hitung luas permukaan, dalam cm^2 , prisma itu.
Calculate the surface area, in cm^2 , of the prism.

- A 514 C 540
B 528 D 576

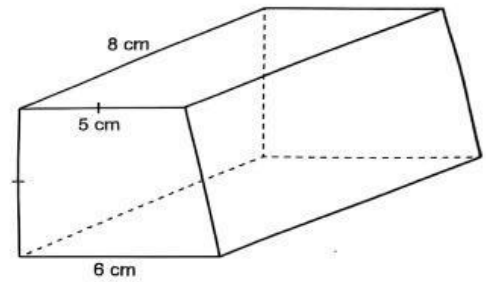
19. Rajah di bawah menunjukkan sebuah kon tegak.
The diagram below shows a right cone.



Hitung isi padu, dalam cm^3 , kon itu.
Calculate the volume, in cm^3 , of the cone.
[Guna / Use $\pi = 3.142$]

- A 314.2 C 942.6
B 340.4 D 1 021.2

20. Rajah di bawah menunjukkan sebuah prisma tegak.
The diagram below shows a right prism.



Hitung luas keratan rentas, dalam cm^2 , bagi prisma di atas.
Calculate the cross-sectional area, in cm^2 , of the above prism.

- A 27.5 C 40
B 30 D 44