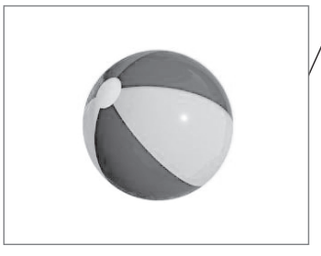
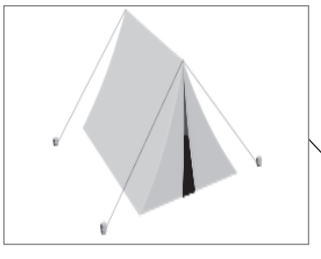
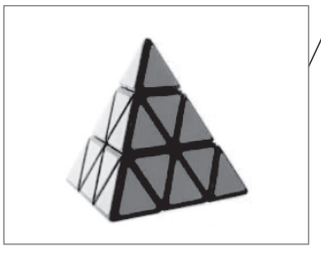
Jawapan

Bab 6

1.



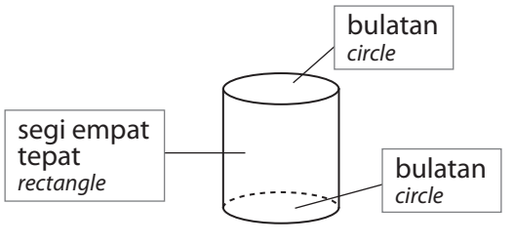




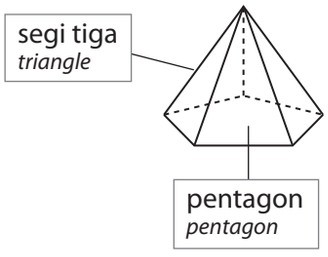
	Sfera *Sphere*	5 permukaan rata *5 flat surfaces* 0 permukaan melengkung *0 curved surface* 5 bucu / *5 vertices* 8 tepi / *8 edges*
	Kon *Cone*	0 permukaan rata *0 flat surfaces* 1 permukaan melengkung *1 curved surface* 0 bucu / *0 vertices* 0 tepi / *0 edges*
	Piramid *Pyramid*	2 permukaan rata *2 flat surfaces* 1 permukaan melengkung *1 curved surface* 0 bucu / *0 vertices* 2 tepi / *2 edges*
	Silinder *Cylinder*	1 permukaan rata *1 flat surface* 1 permukaan melengkung *1 curved surface* 1 bucu / *1 vertex* 1 tepi / *1 edge*
	Prisma *Prism*	5 permukaan rata *5 flat surfaces* 0 permukaan melengkung *0 curved surfaces* 6 bucu / *6 vertices* 9 tepi / *9 edges*

2. (a) I
(b) III, IV
(c) V
(d) II, IV
(e) I, III
(f) III, IV, V

3. (a)



(b)



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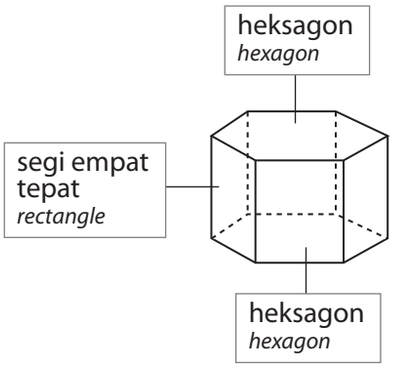

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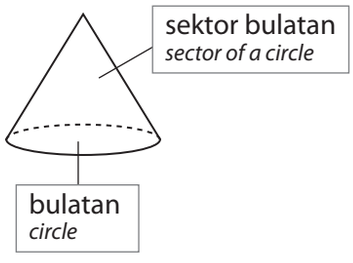

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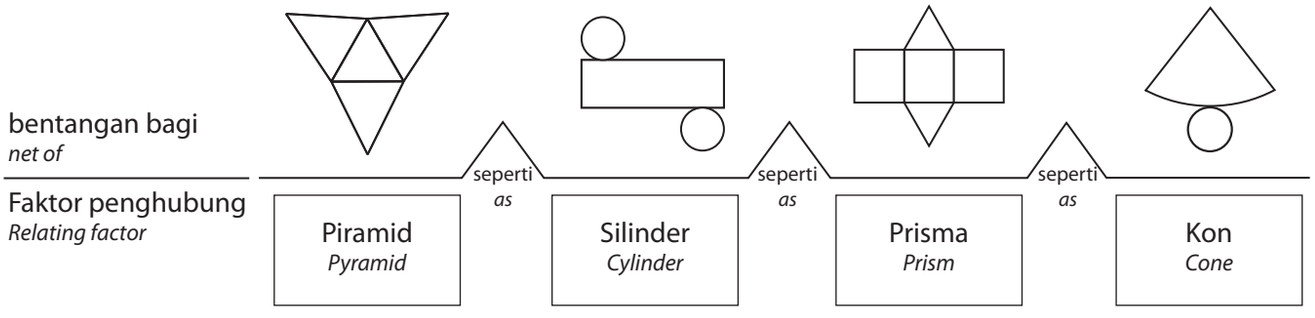

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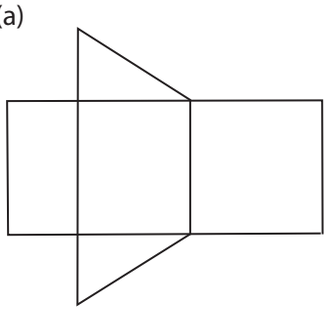
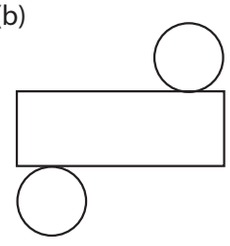
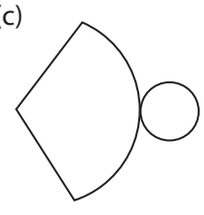


(b)



(c)



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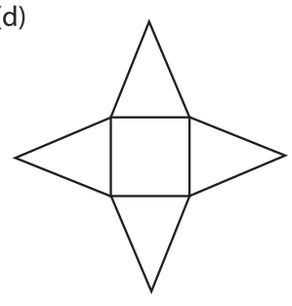


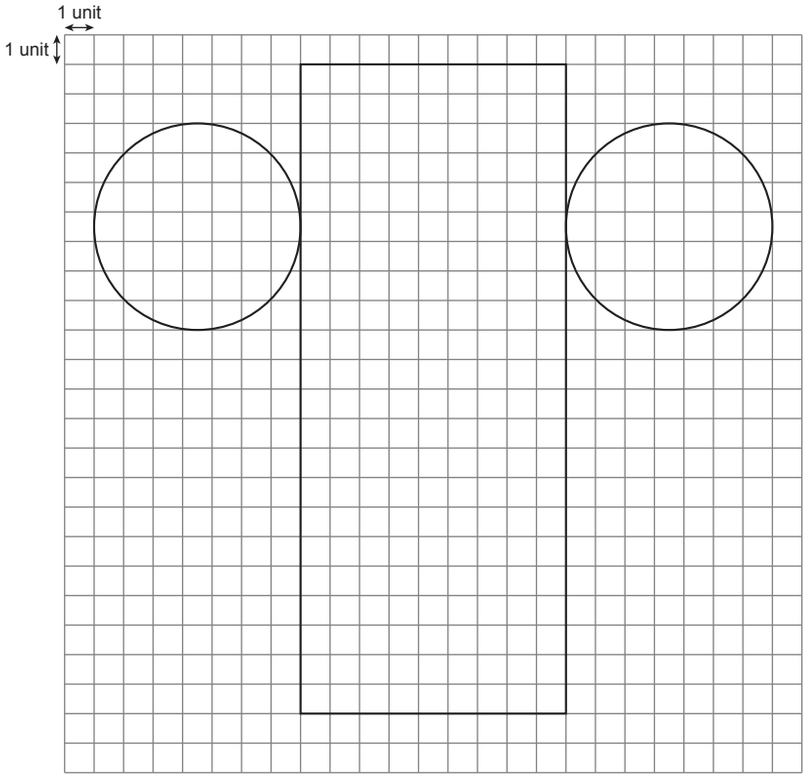
6. Panjang segi empat tepat
Length of rectangle

$= 2 \times \frac{22}{7} \times 3.5$

Rumus lilitan bulatan
Formula of circumference of circle
$= 2\pi j$

= 22 unit/ *units*

(Jawapan lain yang sesuai diterima)
(Other suitable answer is accepted)



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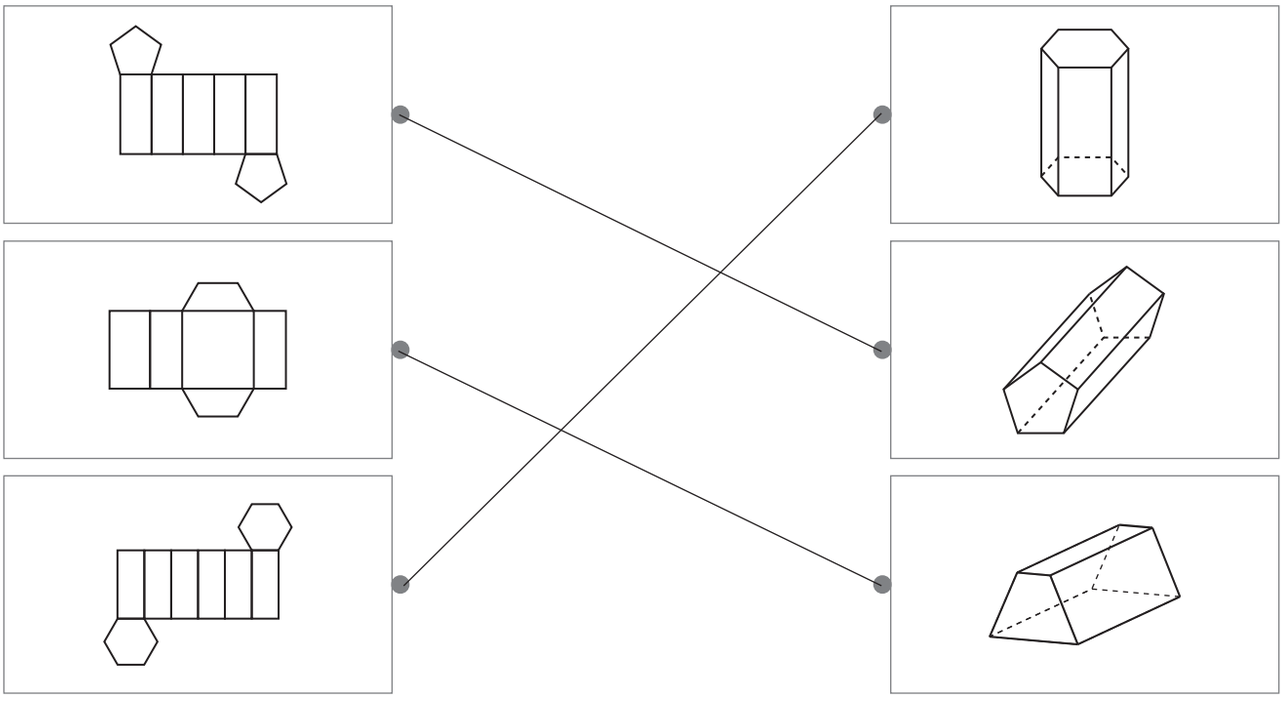
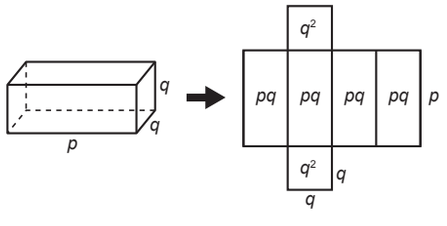


8. (a)

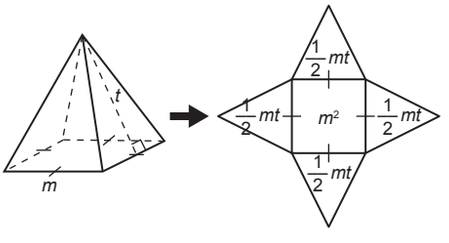


Luas permukaan/ *Surface area*

$= (4 \times pq) + (2 \times q^2)$

$= 4pq + 2q^2$

(b)

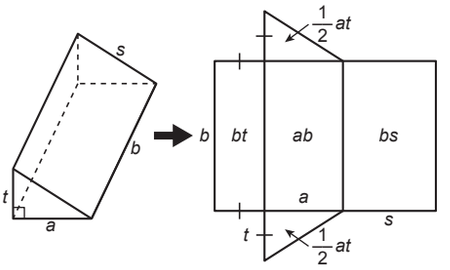


Luas permukaan/ *Surface area*

$= m^2 + \left(4 \times \frac{1}{2}mt\right)$

$= m^2 + 2mt$

(c)

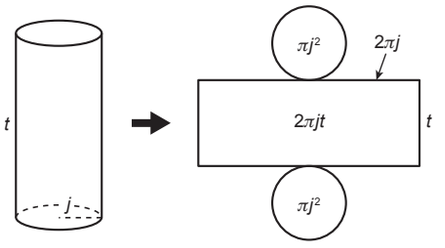


Luas permukaan/ *Surface area*

$= bt + ab + bs + \left(2 \times \frac{1}{2}at\right)$

$= bt + ab + bs + at$

(d)

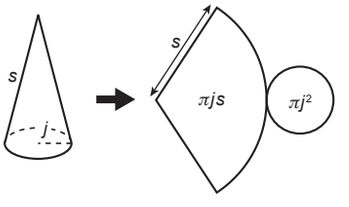


Luas permukaan/ *Surface area*

$= 2 \times \pi j^2 + 2\pi jt$

$= 2\pi j^2 + 2\pi jt$

(e)



Luas permukaan/ *Surface area*

$= \pi j^2 + \pi js$

9. (a) Luas permukaan/ *Surface area*

$= 2(3 \times 5) + (6 \times 3) + 2\left(\frac{1}{2} \times 6 \times 4\right)$

$= 30 + 18 + 24$

$= 72 \text{ cm}^2$

$\sqrt{5^2 - 3^2} = 4 \text{ cm}$

(b) Luas permukaan/ *Surface area*

$= (5 \times 5) + 4\left(\frac{1}{2} \times 5 \times 14\right)$

$= 25 + 140$

$= 165 \text{ cm}^2$

(c) Luas permukaan/ *Surface area*

$= 2\left(\frac{22}{7} \times 10.5^2\right) + \left(2 \times \frac{22}{7} \times 10.5 \times 5\right)$

$= 693 + 330$

$= 1\,023 \text{ cm}^2$

Jejari/ *Radius* = 21 ÷ 2
= 10.5 cm

(d) Luas permukaan/ *Surface area*

$= \left(\frac{22}{7} \times 5^2\right) + \left(\frac{22}{7} \times 5 \times 13\right)$

$= \frac{550}{7} + \frac{1\,430}{7}$

$= 282.86 \text{ cm}^2$

$\sqrt{5^2 + 12^2} = 13 \text{ cm}$

(e) Luas permukaan/ *Surface area*

$= (18 \times 18) + 4\left(\frac{1}{2} \times 18 \times 15\right)$

$= 324 + 540$

$= 864 \text{ cm}^2$

12 cm, t, 9 cm

$t = \sqrt{12^2 + 9^2}$
$= 15 \text{ cm}$

(f) Luas permukaan/ *Surface area*

$= 4 \times \frac{22}{7} \times 5.6^2$

$= 394.24 \text{ cm}^2$

(g) Luas permukaan/ *Surface area*

$= 4 \times \frac{22}{7} \times 10.5^2$

$= 1\,386 \text{ cm}^2$

Jejari/ *Radius* = 21 ÷ 2
= 10.5 cm

10. (a) Luas permukaan khemah / *Surface area of tent*

$= 25.6 \text{ m}^2$

Luas muka depan + Luas muka belakang + Luas dua muka condong

Area of front face + Area of back face + Areas of two slanted faces

$= 25.6$

$s = \sqrt{2.4^2 + 1^2}$
$= \sqrt{6.76}$
$= 2.6 \text{ cm}$

$\left(2 \times \frac{1}{2} \times 2 \times 2.4\right) + (2 \times 2.6 \times p) = 25.6$

$4.8 + 5.2p = 25.6$

$5.2p = 20.8$

$p = \frac{20.8}{5.2}$

$= 4$

Maka, panjang tapak khemah itu ialah 4 m.
Therefore, the length of the base of the tent is 4 m.

(b) Jumlah luas permukaan / *Total surface area*

= Luas tapak + Luas permukaan melengkung silinder + Luas permukaan hemisfera

Area of base + Area of curved surface of cylinder + Surface area of hemisphere

$= \pi j^2 + 2\pi jt + \frac{1}{2} \times 4\pi j^2$

$= \frac{22}{7} \times 7^2 + 2 \times \frac{22}{7} \times 7 \times 30 + \frac{1}{2} \times 4 \times \frac{22}{7} \times 7^2$

$= 154 + 1\,320 + 308$

$= 1\,782 \text{ cm}^2$

Jumlah luas kepingan besi bagi 100 buah bekas

Total area of iron sheet used in 100 *containers*

$= 1\,782 \times 100$

$= 178\,200 \text{ cm}^2$

$= \frac{178\,200}{100^2}$

$= 17.82 \text{ m}^2$

(c) (i) (a) Luas permukaan sfera
Surface area of sphere

$= 4 \times \frac{22}{7} \times 10.5^2$

$= 1\,386 \text{ cm}^2$

(b) Luas muka melengkung silinder
Area of the curved surface of cylinder

$= 2 \times \frac{22}{7} \times 10.5 \times 21$

$= 1\,386 \text{ cm}^2$

(ii) Luas permukaan sfera adalah sama dengan luas permukaan melengkung silinder yang mempunyai tinggi dan diameter yang sama dengan diameter sfera itu.
The surface area of the sphere is equal to the area of the curved surface of cylinder that has the same height and diameter with the sphere.

11. Prisma/ *Prism*

= Luas keratan rentas (*Area of cross section*) × Tinggi (*Height*)

Silinder/ *Cylinder*

= Luas tapak (*Base area*) × Tinggi (*Height*)

$= \pi j^2 \times t$

$= \pi j^2 t$

Piramid/ *Pyramid*

$= \frac{1}{3} \times$ Luas tapak (*Base area*) × Tinggi (*Height*)

Kon/ *Cone*

$= \frac{1}{3} \times \pi j^2 \times t$

$= \frac{1}{3}\pi j^2 t$

12. (a) Isi padu silinder / *Volume of cylinder*

$= \pi j^2 t$

$= \frac{22}{7} \times 7^2 \times 4$

$= 616 \text{ cm}^3$

(b) Isi padu prisma / *Volume of prism*

= Luas trapezium × Tinggi
Area of trapezium × Height

$= \left[\frac{1}{2} \times (8 + 12) \times 5\right] \times 9$

$= 50 \times 9$

$= 450 \text{ cm}^3$

(c) Isi padu piramid
Volume of pyramid

$= \frac{1}{3} \times$ Luas tapak (*Base area*) × Tinggi (*Height*)

$= \frac{1}{3} \times \left(\frac{1}{2} \times 6 \times 8\right) \times 8$

$= \frac{1}{3} \times 24 \times 8$

$= 64 \text{ cm}^3$

$= \sqrt{10^2 - 6^2}$
$= 8 \text{ cm}$

(d) Isi padu kon
Volume of cone

$= \frac{1}{3}\pi j^2 t$

$= \frac{1}{3} \times \frac{22}{7} \times \left(\frac{18}{2}\right)^2 \times 28$

$= 2\,376 \text{ cm}^3$

(e) Isi padu sfera
Volume of sphere

$= \frac{4}{3}\pi j^3$

$= \frac{4}{3} \times \frac{22}{7} \times \left(\frac{30}{2}\right)^3$

$= 14\,142.9 \text{ cm}^3$

(f) Isi padu hemisfera
Volume of hemisphere

$= \frac{1}{2} \times \frac{4}{3}\pi j^3$

$= \frac{1}{2} \times \frac{4}{3} \times \frac{22}{7} \times 8.4^3$

$= 1\,241.9 \text{ cm}^3$

13. (a) Isi padu prisma $= 300 \text{ cm}^3$
Volume of the prism

$\frac{1}{2} \times (4 + 8) \times t \times 10 = 300$

$60t = 300$

$t = \frac{300}{60}$

$= 5$

(b) Lilitan/ *Circumference* $= 44$

$2 \times \frac{22}{7} \times j = 44$

$j = 44 \times \frac{7}{44}$

$= 7 \text{ cm}$

Isi padu silinder/ *Volume of the cylinder*

$= \frac{22}{7} \times 7^2 \times 5$

$= 770 \text{ cm}^3$

(c) Isi padu susu segar dalam bekas *A*
Volume of fresh milk in container A

$= 11 \times 7 \times \frac{30}{2}$

$= 1\,155 \text{ cm}^3$

Isi padu susu segar dalam satu gelas
Volume of fresh milk in a glass
$= 1\,155 \div 3$
$= 385\ \text{cm}^3$

Katakan h ialah tinggi susu dalam setiap gelas.
Let h be the height of milk in each glass.

$$\frac{22}{7} \times \left(\frac{7}{2}\right)^2 \times h = 385$$
$$h = 385 \times \frac{2}{77}$$
$$= 10\ \text{cm}$$

Maka, tinggi susu segar dalam gelas ialah 10 cm.
Thus, the height of the fresh milk in the glass is 10 cm.

(d) Isi padu sebiji kek
Volume of the cake

$= \frac{1}{3} \times$ Luas tapak $\times$ Tinggi
$\frac{1}{3} \times$ *Area of base* $\times$ *Height*

$= \frac{1}{3} \times 16 \times 12 \times 24$
$= 1\,536\ \text{cm}^3$

Isi padu potongan kek bagi bahagian atas
Volume of the piece of cake for the upper part
$= \frac{1}{3} \times 8 \times 6 \times 12$
$= 192\ \text{cm}^3$

Isi padu potongan kek bagi bahagian bawah
Volume of the piece of cake for the lower part
$= 1\,536 - 192$
$= 1\,344\ \text{cm}^3$

(e) (i) 20 cm = 0.2 m, 35 cm = 0.35 m

Isi padu dinding tangki
Volume of the wall of the tank
= Isi padu silinder dengan jejari luar
– Isi padu silinder dengan jejari dalam
Volume of cylinder with outer radius
– Volume of cylinder with inner radius

$$= \left[\frac{22}{7} \times \left(\frac{1.7}{2}\right)^2 \times 2.1\right] - \left[\frac{22}{7} \times \left(\frac{1.3}{2}\right)^2 \times 2.1\right]$$
$= 4.7685 - 2.7885$
$= 1.98\ \text{m}^3$

Diameter silinder dalam
Diameter of inner cylinder
= 1.7 – 0.2 – 0.2
= 1.3 m

Isi padu tapak tangki
Volume of the base of the tank
$= \frac{22}{7} \times \left(\frac{1.7}{2}\right)^2 \times 0.35$
$= 0.79\ \text{m}^3$

Jumlah isi padu simen konkrit
Total volume of the concrete cement
$= 1.98 + 0.79$
$= 2.77\ \text{m}^3$

= Isi padu dinding tangki + isi padu tapak tangki
Volume of the wall of the tank + volume of the base of the tank

(ii) Jumlah kos pembinaan bagi 15 buah tangki
Total construction cost for 15 *tanks*
$= 2.77 \times 220 \times 15$
= RM9 141

Praktis Masteri 6

BAHAGIAN A

1. Jawapan / *Answer*: **C**

2. Jumlah luas permukaan silinder
Total surface area of a cylinder
$= 2 \times \pi j^2 + 2\pi jt$
$= 2 \times \frac{22}{7} \times 7^2 + 2 \times \frac{22}{7} \times 7 \times 10$
$= 308 + 440$
$= 748\ \text{cm}^2$

Jawapan / *Answer*: **B**

3. Isi padu prisma / *Volume of prism*
= Luas keratan rentas $\times$ tinggi
Area of cross section $\times$ *Height*
$= \frac{1}{2} \times 4 \times 6 \times 10$
$\sqrt{5^2 - 3^2 = 4}$
$= 12 \times 10$
$= 120\ \text{cm}^3$

Jawapan / *Answer*: **A**

4. Jumlah luas permukaan kon
Total surface area of cone
$= \pi j^2 + \pi js$
$= \frac{22}{7} \times 7^2 + \frac{22}{7} \times 7 \times 14$
$= 154 + 308$
$= 462\ \text{cm}^2$

Jawapan / *Answer*: **B**

5. Lebar tapak keratan rentas
The width of the base of cross section
$= \sqrt{10^2 - 6^2}$
$= \sqrt{64}$
$= 8\ \text{cm}$

Jumlah luas permukaan
Total surface area

$$2 \times \left(\frac{1}{2} \times 6 \times 8\right) + 6x + 8x + 10x = 384$$
$$48 + 24x = 384$$
$$24x = 336$$
$$x = \frac{336}{24}$$
$$= 14$$

Jawapan / *Answer*: **B**

BAHAGIAN B

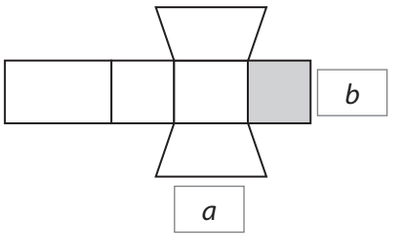
6. (a) Prisma mempunyai dua tapak rata berbentuk poligon yang kongruen dan selari manakala, permukaan rata lain adalah berbentuk segi empat. ✓
A prism has two flat polygonal bases which are congruent and parallel while, other flat surfaces are quadrilateral shape.

Silinder mempunyai dua tapak rata berbentuk bulatan yang kongruen dan selari manakala, permukaan rata lain berbentuk segi empat tepat. ✗
A cylinder has two circular flat bases which are congruent and parallel while, other flat surfaces are rectangular.

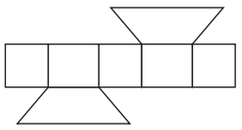
(b) (i) Piramid
Pyramid

(ii) Prisma
Prism

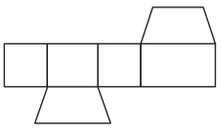
7. (i)



(ii)



✗



✓

BAHAGIAN C

8. (a) Isi padu / *Volume*

$= \left(\frac{1}{2} \times 3 \times 4 \times 10\right) + \frac{1}{2}\left(\frac{22}{7} \times 2^2 \times 10\right)$

$= 60 + \frac{440}{7}$

$= 122.86 \text{ cm}^3$

(b) Isi padu ruang di sekeliling mangkuk
Volume of the space surrounding the bowl

= Isi padu kon – Isi padu hemisfera
Volume of cone – volume of hemisphere

$= \left[\frac{1}{3} \times \left(\frac{22}{7} \times 16^2\right) \times 12\right] - \frac{1}{2}\left(\frac{4}{3} \times \frac{22}{7} \times 7^3\right)$

$= 3\,218.29 - 718.67$

$= 2\,499.62 \text{ cm}^3$

(c) Panjang lengkok Rajah (i)
Arc length of Diagram (i)

$= \frac{270°}{360°} \times 2 \times \frac{22}{7} \times 7$

$= 33 \text{ cm}$

Lilitan tapak bulatan
Circumference of the base of the circle

$2 \times \frac{22}{7} \times j = 33$

$j = 5.25 \text{ cm}$

Maka, luas permukaan kon
Thus, the surface area of the cone

$= \pi j^2 + \pi j s$

$= \left(\frac{22}{7} \times 5.25^2\right) + \left(\frac{22}{7} \times 5.25 \times 7\right)$

$= 86.625 + 115.5$

$= 202.125 \text{ cm}^2$

Fokus KBAT

(a) Isi padu kek lapisan pertama
Volume of the first layer cake

$= \frac{22}{7} \times 12.5^2 \times 8$

$= 3\,928.57 \text{ cm}^3$

Isi padu kek lapisan kedua
Volume of the second layer cake

$= \frac{22}{7} \times 10^2 \times 8$

$= 2\,514.29 \text{ cm}^3$

Isi padu kek lapisan ketiga
Volume of the third layer cake

$= \frac{22}{7} \times 7.5^2 \times 8$

$= 1\,414.29 \text{ cm}^3$

Jumlah isi padu keseluruhan kek
Total volume of the whole cake

$= 3\,928.57 + 2\,514.29 + 1\,414.29$

$= 7\,857.15 \text{ cm}^3$

Purata isi padu kek yang boleh dimakan oleh setiap guru
The average volume of cake each teacher can eat

$= 7\,857.15 \div 100$

$= 78.57 \text{ cm}^3$

(b) Luas permukaan lapisan pertama
Surface area of the first layer

$= \left(\frac{22}{7} \times 12.5^2\right) - \left(\frac{22}{7} \times 10^2\right) + \left(2 \times \frac{22}{7} \times 12.5 \times 8\right)$

$= 805.357 \text{ cm}^2$

Luas permukaan lapisan kedua
Surface area of the second layer

$= \left(\frac{22}{7} \times 10^2\right) - \left(\frac{22}{7} \times 7.5^2\right) + \left(2 \times \frac{22}{7} \times 10 \times 8\right)$

$= 640.357 \text{ cm}^2$

Luas permukaan lapisan ketiga
Surface area of the third layer

$= \left(\frac{22}{7} \times 7.5^2\right) + \left(2 \times \frac{22}{7} \times 7.5 \times 8\right)$

$= 553.929 \text{ cm}^2$

Jumlah luas permukaan
Total surface area

$= 805.357 + 640.357 + 553.929$

$= 1\,999.643 \text{ cm}^2$

Kos / *Cost*

$= 1\,999.643 \times \text{RM}0.10$

$= \text{RM}199.96$