

Fully-Worked Solutions

PRACTICE 6

Section A

- 1 Prism has uniform cross section.

Answer: **A**

- 2 Answer: **C**

- 3 The net of a cylinder consists of a rectangle and two circles.

Answer: **B**

- 4 The net represents prism with triangle as its uniform cross section.

Answer: **D**

- 5 Surface area = $6 \times (9 \times 9)$
 $= 6 \times 81$
 $= 486 \text{ cm}^2$

Answer: **B**

- 6 Surface area
 $= 2(5 \times 3) + 2(8 \times 3) + 2(5 \times 8)$
 $= 30 + 48 + 80$
 $= 158 \text{ cm}^2$

Answer: **C**

- 7 Surface area
 $= (10 \times 10) + 4\left(\frac{1}{2} \times 10 \times 12\right)$

$$= 100 + 240$$

$$= 340 \text{ cm}^2$$

Answer: **B**

- 8 Surface area
 $= 2\left(\frac{1}{2} \times (6 + 3) \times 4\right) + (4 \times 12) + (3 \times 12) + (6 \times 12)$
 $+ (5 \times 12)$
 $= 36 + 48 + 36 + 72 + 60$
 $= 252 \text{ cm}^2$

Answer: **A**

- 9 Surface area = $2\pi r(r + h)$
 $= 2 \times \frac{22}{7} \times 6 \times (6 + 15)$
 $= 792 \text{ cm}^2$

Answer: **D**

- 10 Surface area = $\pi r^2 + \pi rs$
 $= \pi r(r + s)$
 $= \frac{22}{7} \times 7 \times (7 + 25)$
 $= 704 \text{ cm}^2$

Answer: **D**

- 11 Surface area = $4\pi r^2$
 $= 4 \times \frac{22}{7} \times 3.5^2$
 $= 154 \text{ cm}^2$

Answer: **A**

- 12 Surface area = $2\pi r^2 + \pi r^2$
 $= 3\pi r^2$
 $= 3 \times \frac{22}{7} \times 7^2$
 $= 462 \text{ cm}^2$

Answer: **C**

- 13 Surface area = $2\pi r^2 + \pi rs$
 $= 2\pi(6)^2 + \pi(6)(14)$
 $= 72\pi + 84\pi$
 $= 156\pi$
 $= 156 \times \frac{22}{7}$
 $= 490.29 \text{ cm}^2$

Answer: **B**

- 14 Volume = $\frac{1}{2} \times (3 + 7) \times 5 \times 16$
 $= \frac{1}{2} \times 10 \times 5 \times 16$
 $= 400 \text{ cm}^3$

Answer: **A**

- 15 Volume = $\frac{22}{7} \times 8^2 \times 28$
 $= 5\,632 \text{ cm}^3$

Answer: **B**

- 16 Volume = $\frac{1}{3} \times \frac{22}{7} \times 10.5^2 \times 24$
 $= 2\,772 \text{ cm}^3$

Answer: **C**

- 17 Volume = $\frac{1}{3} \times 16 \times 16 \times 15$
 $= 1\,280 \text{ cm}^3$

Answer: **A**

- 18 Volume = $\frac{4}{3} \times \frac{22}{7} \times 6^3$
 $= 905.14 \text{ cm}^3$

Answer: **D**

- 19 Volume = $\frac{2}{3} \times \frac{22}{7} \times 9^3$
 $= 1\,527.43 \text{ cm}^3$

Answer: **B**

- 20 Volume = $1\,020$

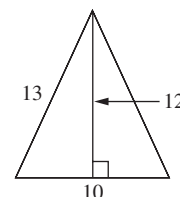
$$\frac{1}{2} \times 10 \times 12 \times x = 1\,020$$

$$60x = 1\,020$$

$$x = \frac{1\,020}{60}$$

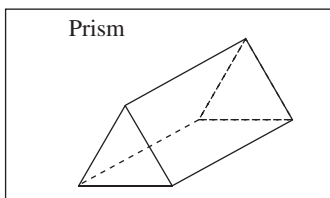
$$= 17$$

Answer: **C**

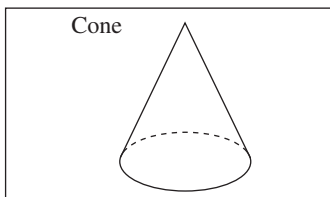


Section B

1 (a)



Has a uniform cross section.



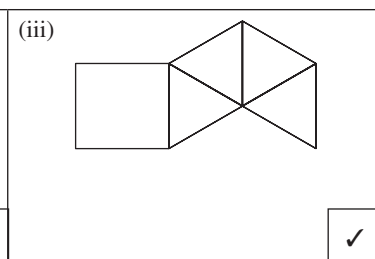
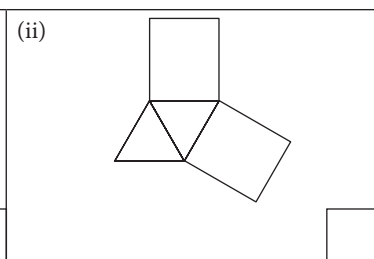
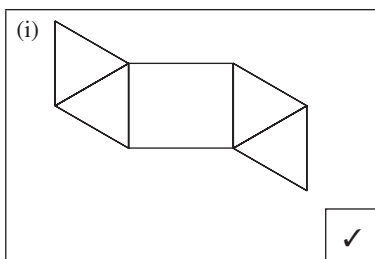
Has two circular surfaces and one curved surface.

Has a circular surface and a curved surface.

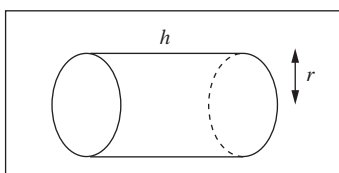
(b) (i) Sphere

(ii) Pyramid

2 (a)

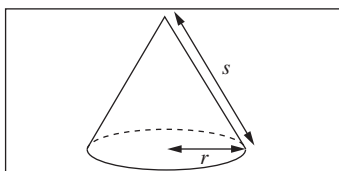


(b)



$$\pi r(r + h)$$

$$2\pi r(r + h)$$



$$\frac{1}{2}\pi r(r + s)$$

$$\pi r(r + s)$$

3 (a) ✗

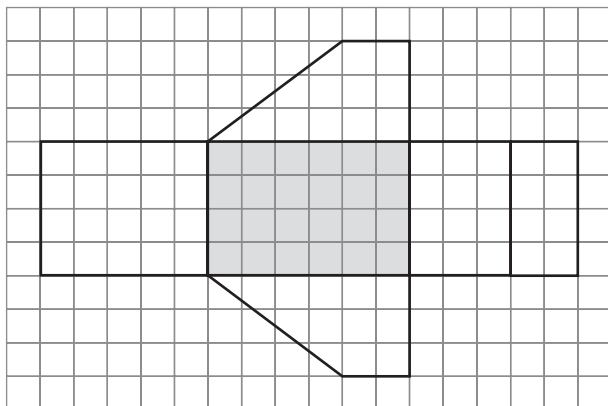
(b) ✓

(c) ✗

(d) ✓

Section C

1 (a)



(b) (i) Volume of cylinder

$$= \frac{22}{7} \times 7^2 \times 18$$

$$= 2\,772 \text{ cm}^3$$

(ii) Volume of cuboid = 2 772

$$21 \times 12 \times t = 2\,772$$

$$t = \frac{2\,772}{252}$$

$$= 11 \text{ cm}$$

(c) Surface area = 640 cm^2

$$2\left(\frac{1}{2} \times 15 \times 8\right) + (15 \times x) + (8 \times x) + (17 \times x) = 640$$

$$40x + 120 = 640$$

$$40x = 640 - 120$$

$$x = \frac{520}{40}$$

$$= 13$$

2 (a) Circumference = 66 cm

$$2 \times \frac{22}{7} \times r = 66$$

$$\frac{44}{7} r = 66$$

$$r = 66 \times \frac{7}{44}$$

$$= 10.5 \text{ cm}$$

$$\text{Volume} = \frac{1}{3} \times \frac{22}{7} \times 10.5^2 \times 35$$

$$= 4\,042.5 \text{ cm}^3$$

(b) (i) Surface area

$$= 2\pi r^2 + 2\pi rh$$

$$= 2\pi r(r + h)$$

$$= 2 \times \frac{22}{7} \times 7 \times (7 + 23)$$

$$= 1\,320 \text{ cm}^2$$

(ii) Volume = $\pi r^2 h$

$$= \frac{22}{7} \times 7^2 \times 23$$

$$= 3\,542 \text{ cm}^3$$

(c) Volume = 855 cm^3

$$\frac{1}{2} \times (4 + x) \times 6 \times 19 = 855$$

$$57(4 + x) = 855$$

$$4 + x = \frac{855}{57}$$

$$4 + x = 15$$

$$x = 15 - 4$$

$$= 11$$