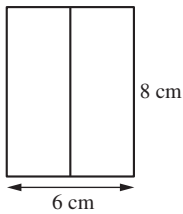


Fully-Worked Solutions

PRACTICE 7

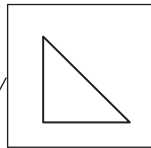
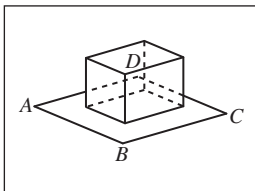
Formative Practice

1

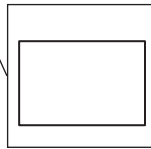
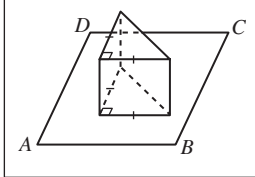


Answer: C

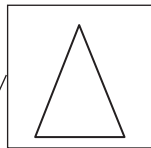
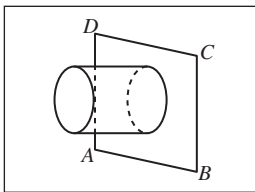
2 (a)



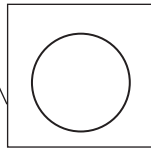
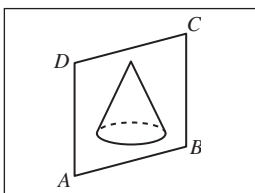
(b)



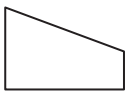
(c)



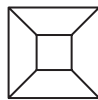
(d)



3 (a)



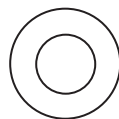
(b)



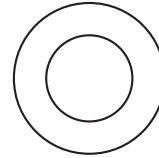
4 (a)



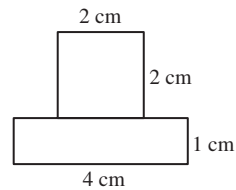
(b)



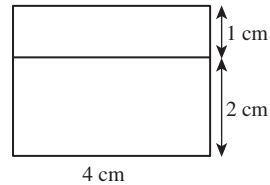
5 (a)



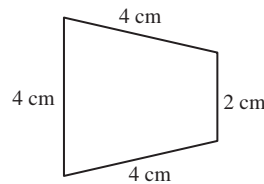
(b)



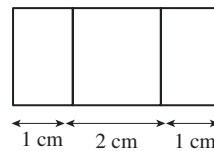
6



7 (a)



(b)



- 8 (a) The length AB on the object and its orthogonal projection are the same. ☒
- (b) The length BF on the object and its orthogonal projection are the same. ☒
- (c) The angle AEB on the object and its orthogonal projection are different. ☒
- (d) The angle DBF on the object and its orthogonal projection are different. ☒
- (e) The shape ABE on the object and its orthogonal projection are the same. ☒

- 9 (a) The sides that are of the same length on the object and its orthogonal projection are PQ, PS, QR and RS.

(b)

Angle corresponding on the object and its orthogonal projection

(i) Same

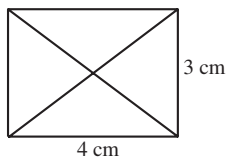
$\angle PQR$
 $\angle QPS$
 $\angle QRS$
 $\angle PSR$
 $\angle PQT$
 $\angle PST$

(ii) Different

$\angle PTS$
 $\angle SPT$
 $\angle PTQ$
 $\angle TPQ$
 $\angle QTR$
 $\angle RTS$

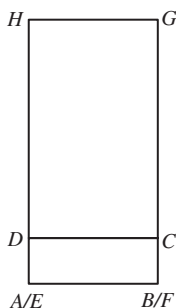
- (c) (i) The shape PQRS on the object and its orthogonal projection are the same.
(ii) The shape PST on the object and its orthogonal projection are different.

10

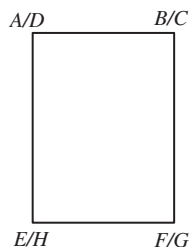


Answer: D

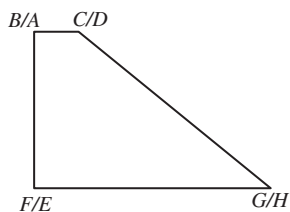
11 (a)



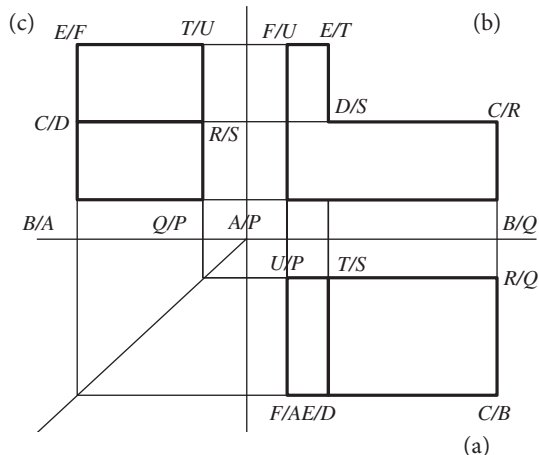
(b) (i)



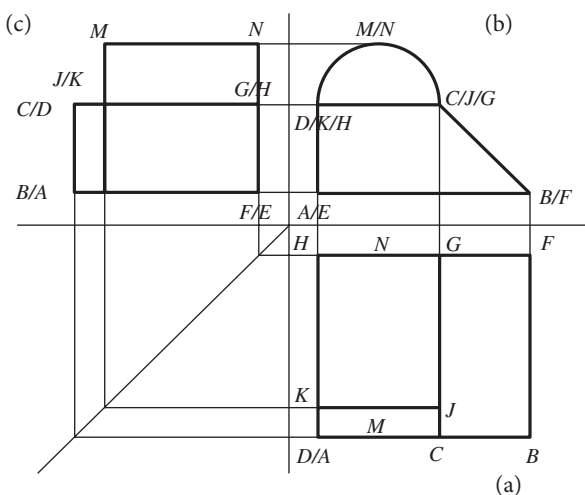
(ii)



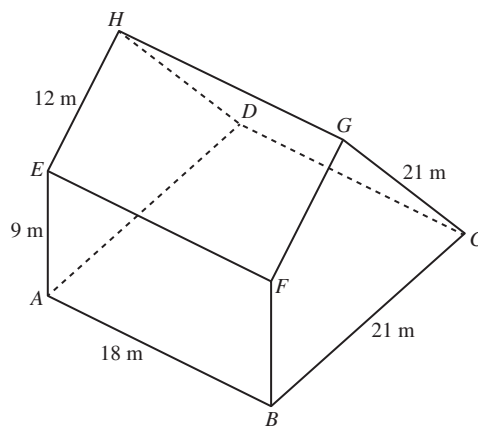
12



13



14 (a)



(b) Surface area

$$\begin{aligned}
 &= 18 \times 9 + 2 \times \left[\frac{1}{2} \times (9 + 16.8) \times 9 + \frac{1}{2} \times 12 \times 16.8 \right] \\
 &\quad + 18 \times 21 + 18 \times 12 \\
 &= 162 + 2 \times [116.1 + 100.8] + 378 + 216 \\
 &= 433.8 + 756 \\
 &= 1\,189.8 \text{ m}^2
 \end{aligned}$$

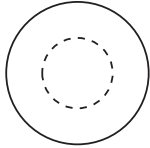
Cost required
 $= 1\,189.8 \times \text{RM}14$
 $= \text{RM}16\,657.2$
 $\approx \text{RM}16\,700$ (three significant figures)

Summative Practice

- 1 The size of angle PTU on the solid is the same as its orthogonal projection.

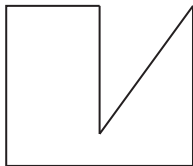
Answer: C

2



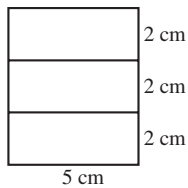
Answer: B

3



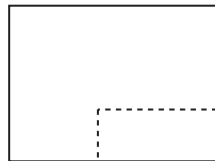
Answer: D

- 4 Orthogonal projection on a vertical plane as viewed from R



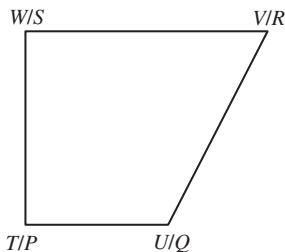
Answer: C

5

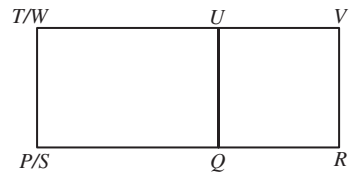


Answer: A

- 6 (a) (i)



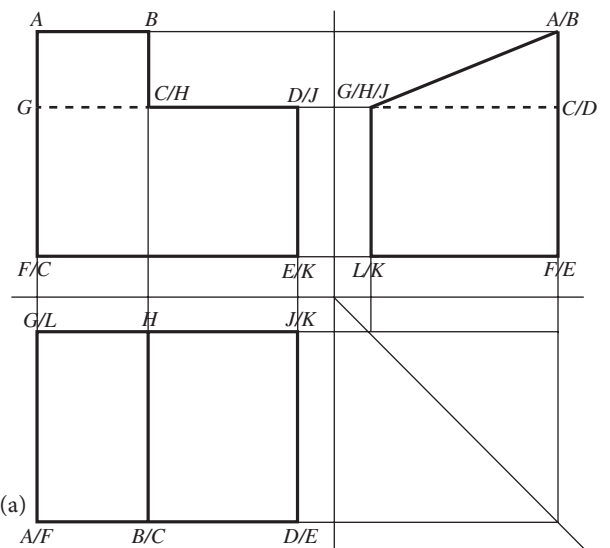
(ii)



- (b) (i) The length VW on the solid and its orthogonal projection on the horizontal plane is the same.
(ii) The angle UVW on the solid and its orthogonal projection on the horizontal plane is the same.
(iii) The shape $TUVW$ on the solid and its orthogonal projection on the horizontal plane is the same.
(c) (i) The length UV on the solid and its orthogonal projection on the horizontal plane is different.
(ii) The angle PTU on the solid and its orthogonal projection on the horizontal plane is the same.
(iii) The shape $QRVU$ on the solid and its orthogonal projection on the horizontal plane is different.

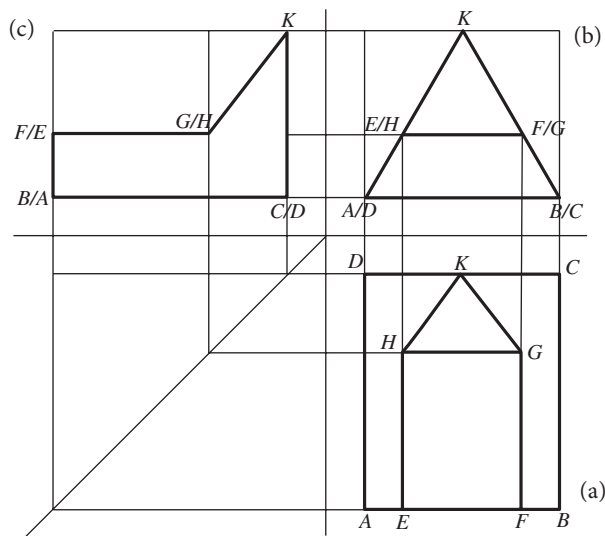
7

(b)

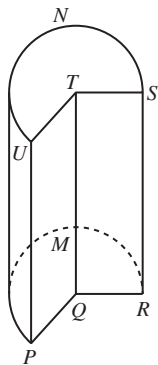


(a)

8



9 (a)

(b) Angle $PQR = 106^\circ$ (c) Reflex angle PQR

$$= 360^\circ - 106^\circ$$

$$= 254^\circ$$

Volume of solid

$$= \frac{254^\circ}{360^\circ} \times \frac{22}{7} \times 10^2 \times 28$$

$$= 6\,210 \text{ cm}^3$$

10

