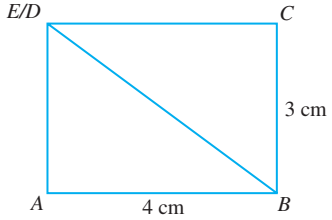
CHAPTER 7 Plans and Elevations

UPSKILL 7.1

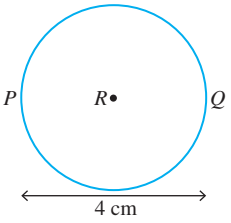
1 (a) Yes. The projection is formed by normal lines from the solid to the plane.
(b) No. The lines projected from the solid to the plane are not normal lines.
(c) Yes. The projection is formed by normal lines from the solid to the plane.
(d) No. The lines projected from the solid to the plane are not normal lines.
(e) Yes. The projection is formed by normal lines from the solid to the plane.
(f) Yes. The projection is formed by normal lines from the solid to the plane.

2 (a) III
(b) Plane X: II Plane Y: I

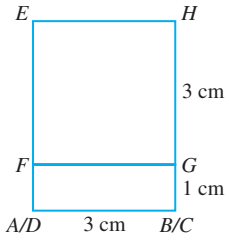
3 (a)



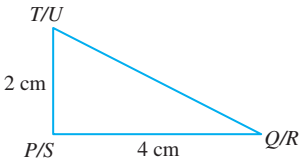
(b)



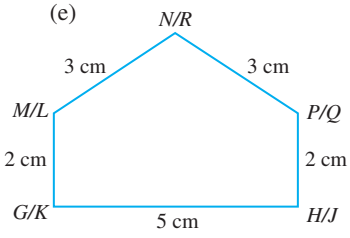
(c)



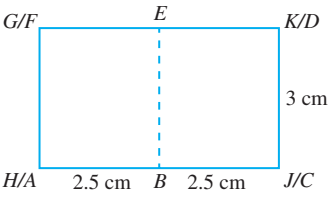
(d)



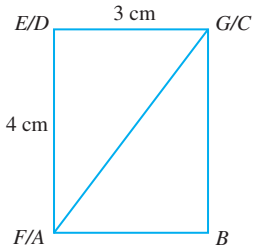
(e)



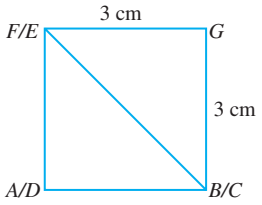
(f)



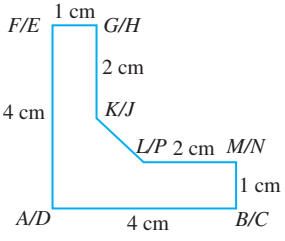
4 (a) X



Y



(b) Y



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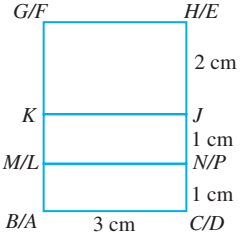
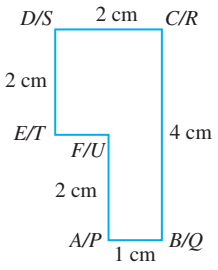


(c) X



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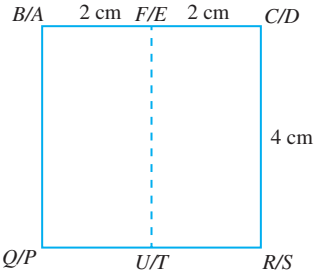
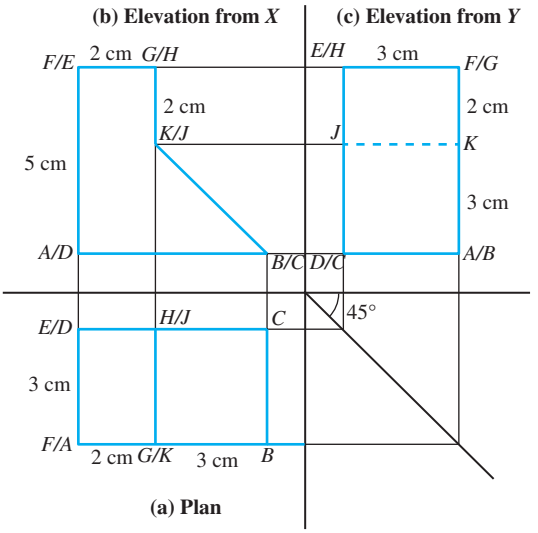


5 (a) (i) $AB = A'B'$ (ii) $EF = E'F'$ (iii) $AF \neq A'F'$
(b) (i) $\angle ABC = \angle A'B'C'$
(ii) $\angle AFG \neq \angle A'F'G'$
(iii) $\angle FGH = \angle F'G'H'$

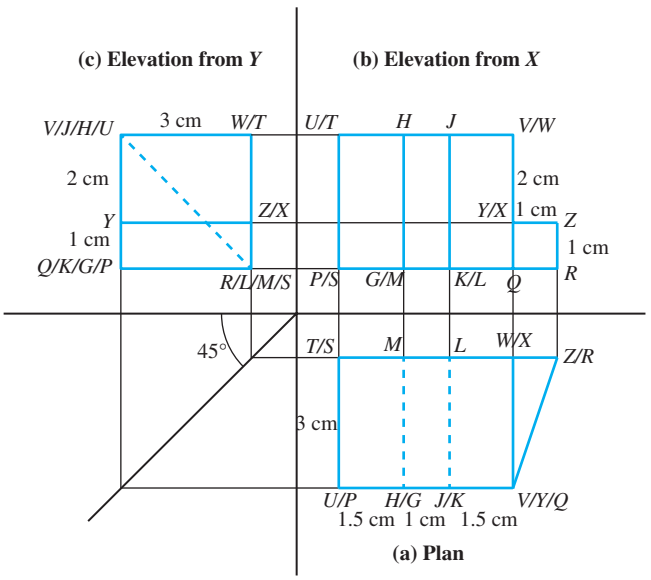
6 (a) (i) $PQ = P'Q'$ (ii) $PT \neq P'T'$
(iii) $UT = U'T'$ (iv) $TQ \neq T'Q'$
(b) (i) $\angle SPQ = \angle S'P'Q'$ (ii) $\angle PTQ \neq \angle P'T'Q'$
(iii) $\angle TUQ = \angle T'U'Q'$ (iv) $\angle TQR = \angle T'Q'R'$

UPSKILL 7.2A

1



2



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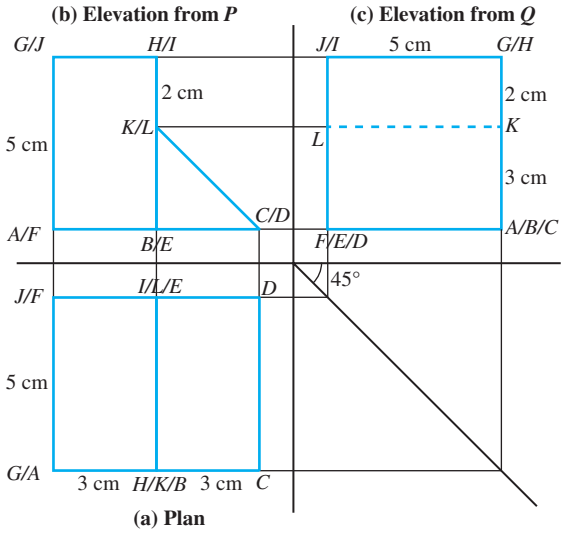
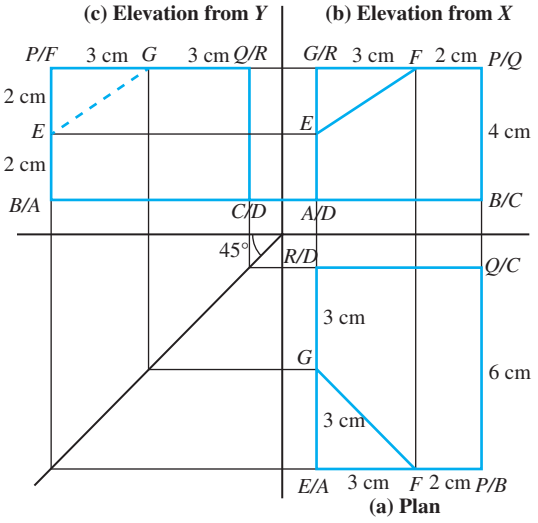
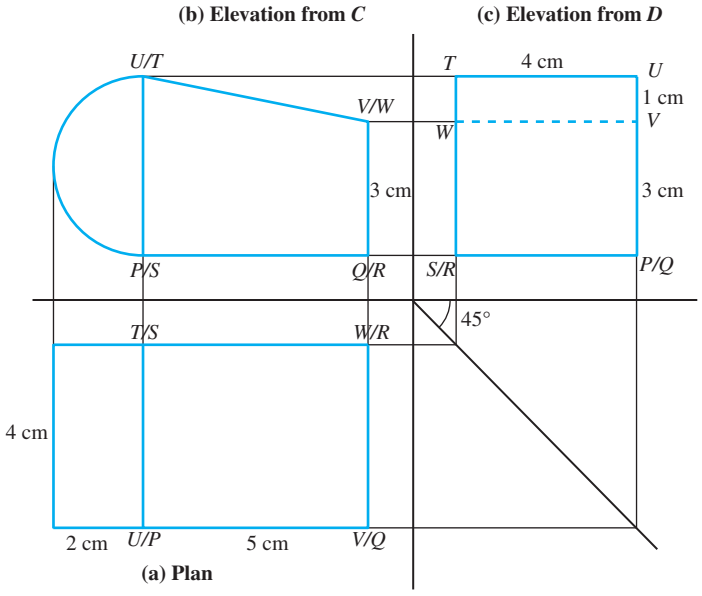


4

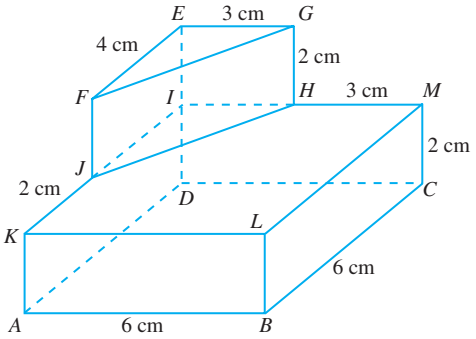


5



UPSKILL 7.2B

1



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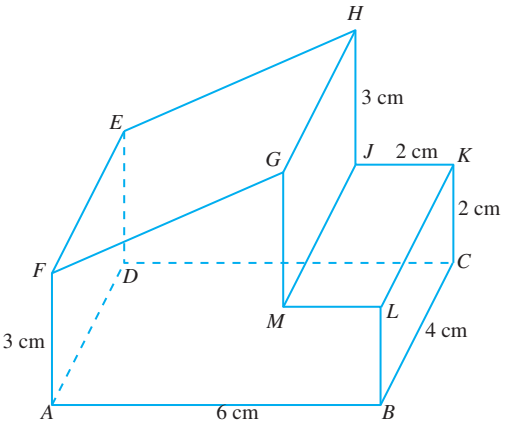


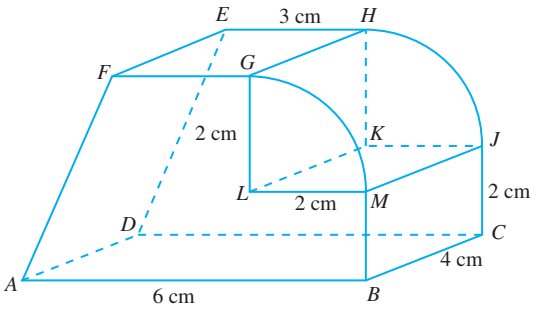
Volume of the prism
= Cross sectional area × length

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

$$= (12 + 8) \times 4$$

$$= 80 \text{ cm}^3$$

3 (a)



(b) Volume of the solid

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

$$= \left(4 + 14 + \frac{22}{7}\right) \times 4$$

$$= 84\frac{4}{7} \text{ cm}^3$$

Summative Practice 7

Section A

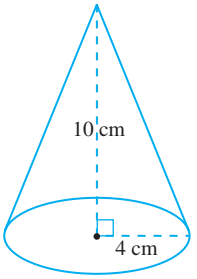
1 C **2** B **3** C **4** D **5** B
6 A **7** D **8** C **9** C

10 Volume of cone $= \frac{1}{3} \times \pi r^2 h$

$$= \frac{1}{3} \times \frac{22}{7} \times 4^2 \times 10$$

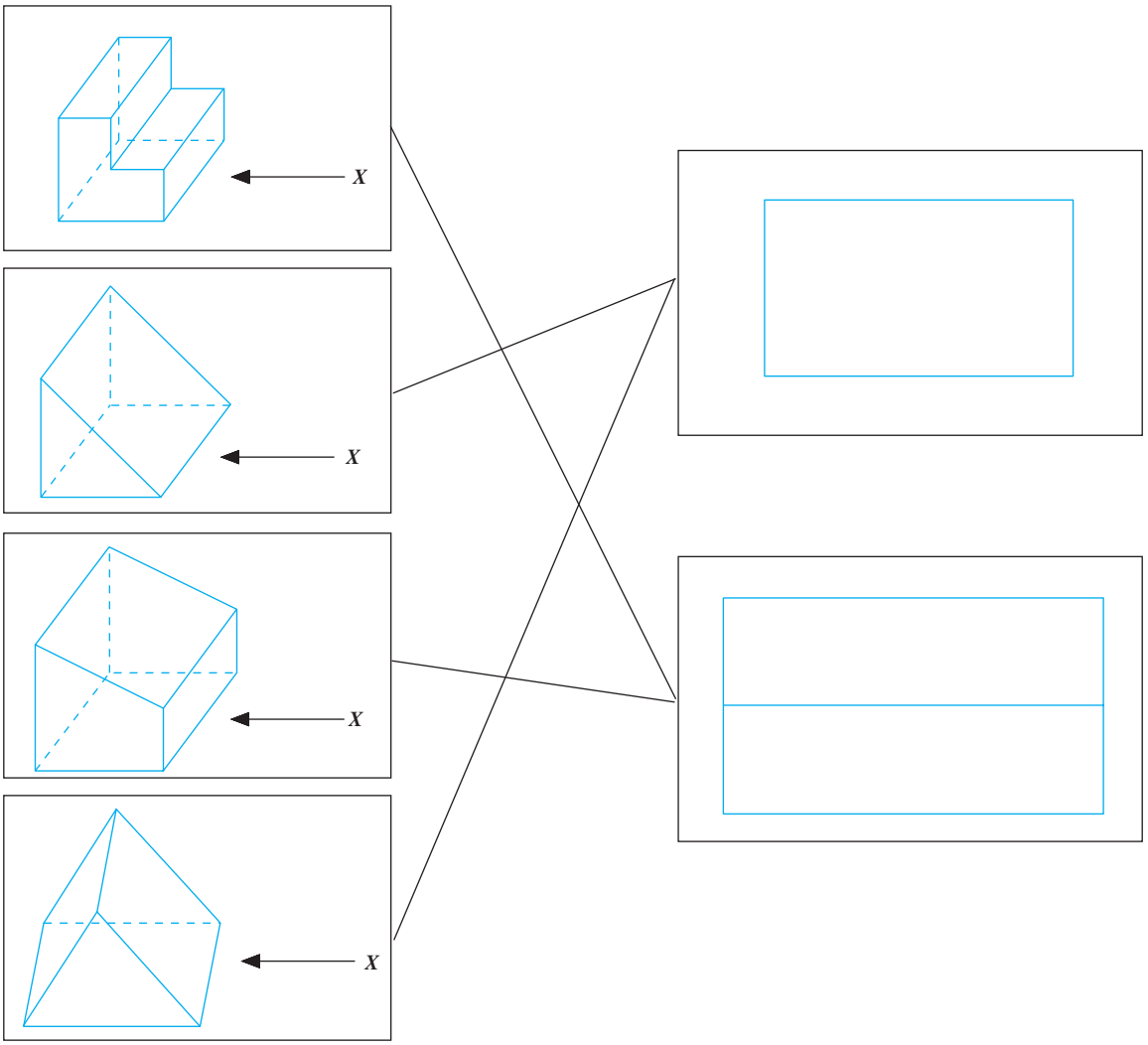
$$= 167.6 \text{ cm}^3$$

Answer: **A**



Section B

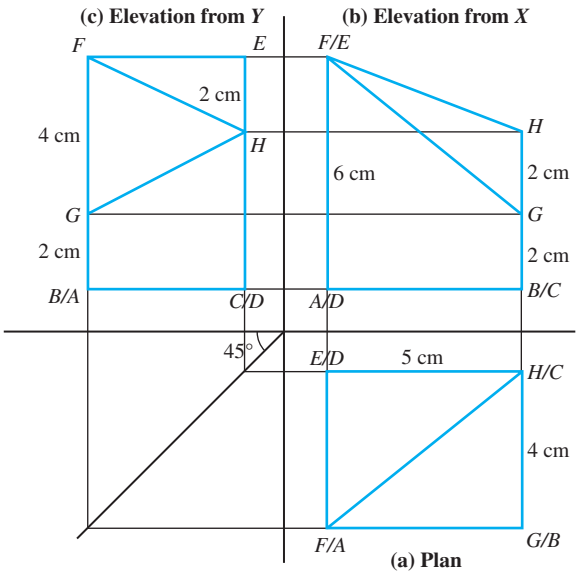
1



2 (a) (i) ✕ (ii) ✓
(b) (i) ✓ (ii) ✕

Section C

1



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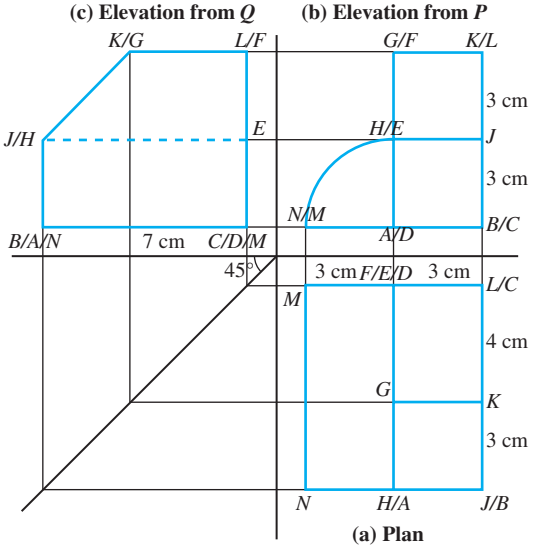
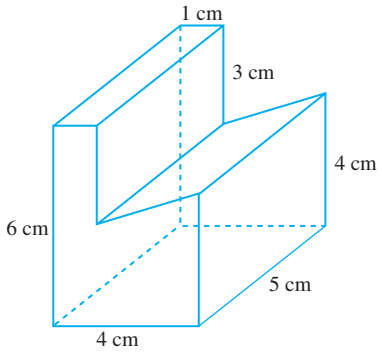
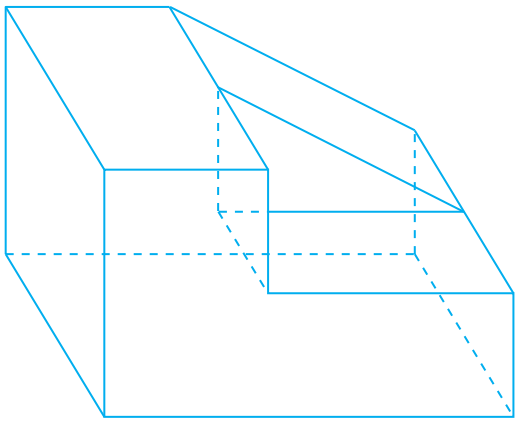


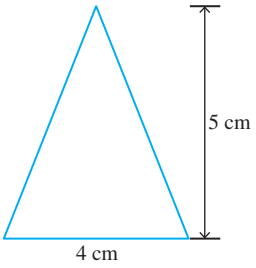
3 (a)



(b)



(c) (i)



(ii)