

1. A room is in the shape of a cuboid. Its floor measures 7.2 m by 9.6 m and its height is 3.5 m.

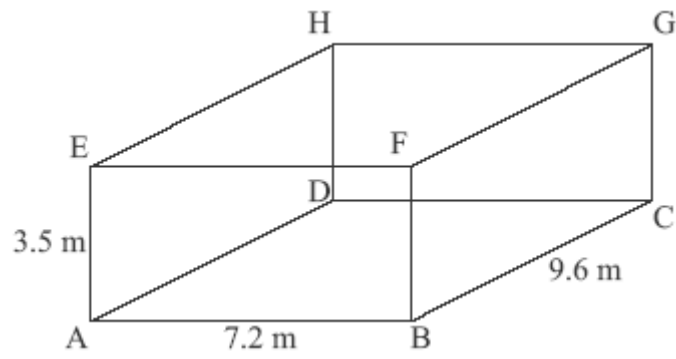


diagram not to scale

- (a) Calculate the length of AC. (2)
- (b) Calculate the length of AG. (2)
- (c) Calculate the angle that AG makes with the floor. (2)
- (Total 6 marks)**

2. A rectangular cuboid has the following dimensions.

Length 0.80 metres (AD)
Width 0.50 metres (DG)
Height 1.80 metres (DC)

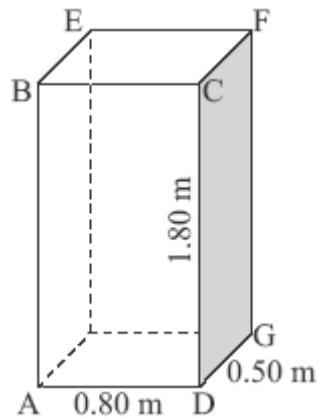


diagram not to scale

(a) Calculate the length of AG.

(2)

(b) Calculate the length of AF.

(2)

(c) Find the size of the angle between AF and AG.

(2)

(Total 6 marks)

3. The right pyramid shown in the diagram has a square base with sides of length 40 cm. The height of the pyramid is also 40 cm.

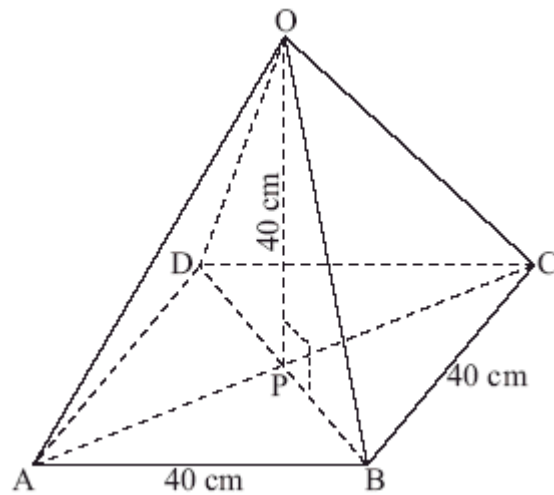


diagram not to scale

- (a) Find the length of OB.

(4)

- (b) Find the size of angle \widehat{OBP} .

(2)

(Total 6 marks)

4. The diagram shows a pyramid VABCD which has a square base of length 10 cm and edges of length 13 cm. M is the midpoint of the side BC.

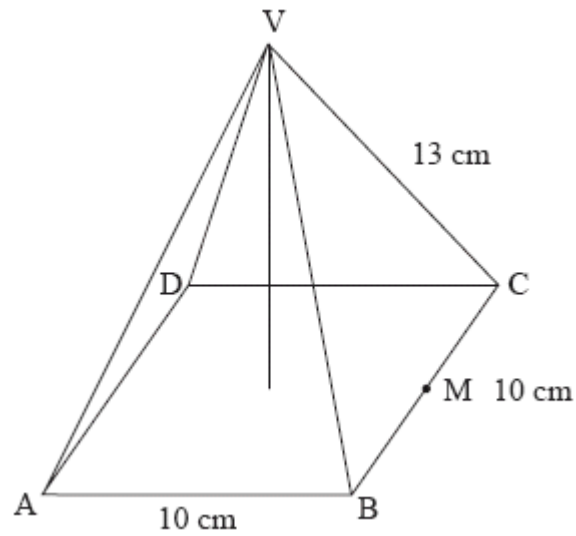


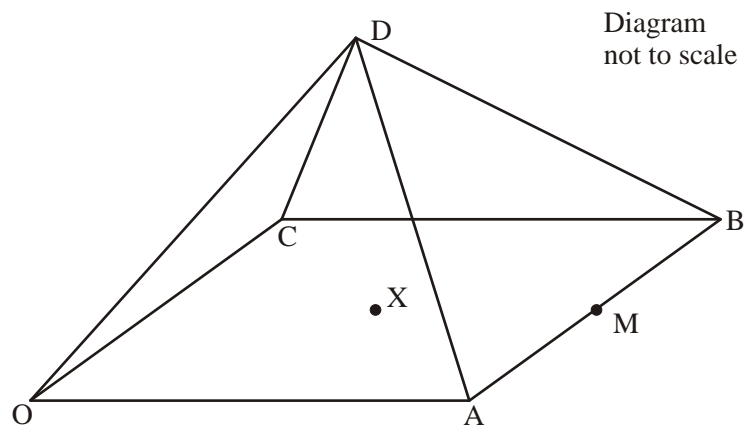
diagram not to scale

- (a) Calculate the length of VM. (2)
- (b) Calculate the vertical height of the pyramid. (2)
- (c) Calculate the angle between a sloping face of the pyramid and its base. (2)

(Total 6 marks)

5. OABCD is a square based pyramid of side 4 cm as shown in the diagram. The vertex D is 3 cm directly above X, the centre of square OABC. M is the midpoint of AB.

- (a) Find the length of XM.
- (b) Calculate the length of DM.
- (c) Calculate the angle between the face ABD and the base OABC.



(Total 8 marks)

6. The following diagram shows the rectangular prism ABCDEFGH. The length is 5 cm, the width is 1 cm, and the height is 4 cm.

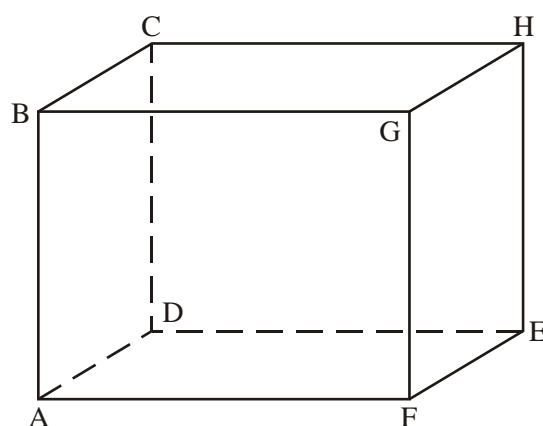
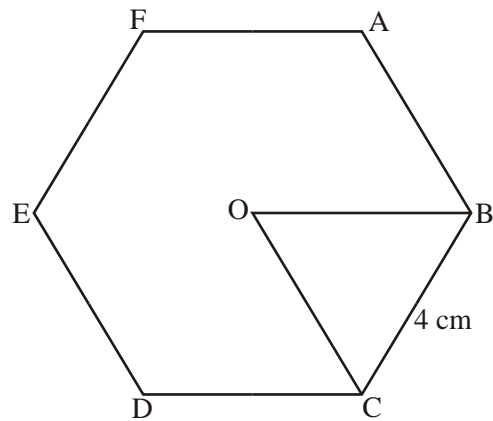


Diagram not to scale

- (a) Find the length of [DF].
- (b) Find the length of [CF].

(Total 8 marks)

7. The figure below shows a hexagon with sides all of length 4 cm and with centre at O. The interior angles of the hexagon are all equal.



The interior angles of a polygon with n equal sides and n equal angles (regular polygon) add up to $(n - 2) \times 180^\circ$.

- (a) Calculate the size of angle $\hat{A} \hat{B} C$.
- (b) Given that $OB = OC$, find the area of the triangle OBC.
- (c) Find the area of the whole hexagon.

(Total 8 marks)