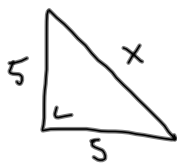
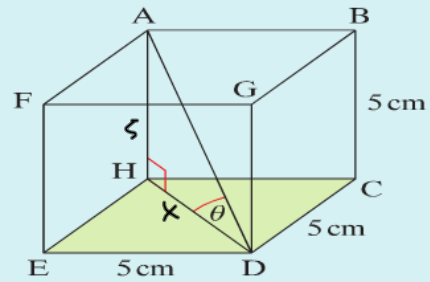


**Example 1**

The given figure shows a cube of side 5 cm.  
Find the measure of the angle between the diagonal [AD] and the base of the cube.



$$x^2 = 5^2 + 5^2$$

$$x^2 = 50$$

$$x = \sqrt{50}$$



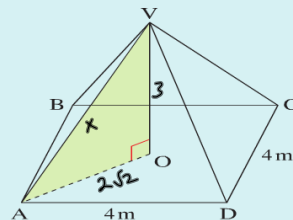
$$\tan \theta = \frac{5}{\sqrt{50}}$$

$$\theta = \tan^{-1} \left( \frac{5}{\sqrt{50}} \right)$$

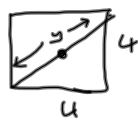
$$= 35.26^\circ$$

**Example 2**

The pyramid shown has a square base of side 4 m and a vertical height of 3 m.



- (i) Calculate the length of the edge [AV].
- (ii) Hence calculate, correct to the nearest whole number, the total area of the four triangular faces.



$$y^2 = 4^2 + 4^2$$

$$y^2 = 32$$

$$y = \sqrt{32}$$

$$y = 4\sqrt{2}$$

$$AO = 2\sqrt{2}$$

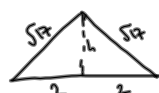


$$x^2 = (2\sqrt{2})^2 + 3^2$$

$$x^2 = 8 + 9 = 17$$

$$x = \sqrt{17}$$

Area of 4 faces?



$$(\sqrt{17})^2 = h^2 + 4^2$$

$$17 = h^2 + 4$$

$$h^2 = 13$$

$$h = \sqrt{13}$$

$$\Delta = \frac{1}{2} \text{Base} \times \text{Height}$$

$$\Delta = \frac{1}{2} (4) (\sqrt{13}) = 2\sqrt{13}$$

$$4\Delta = 8\sqrt{13} = 28.84 \text{ units}^2$$