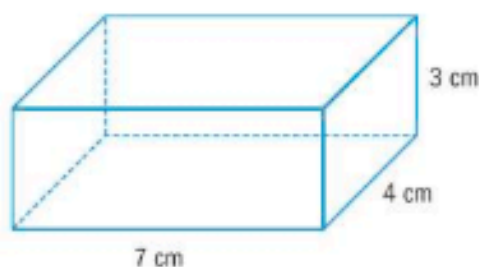


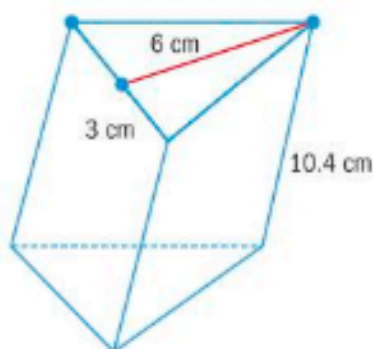
## PRACTICE 2.3 – Geometric Solids and Volume

### Exercise 2G

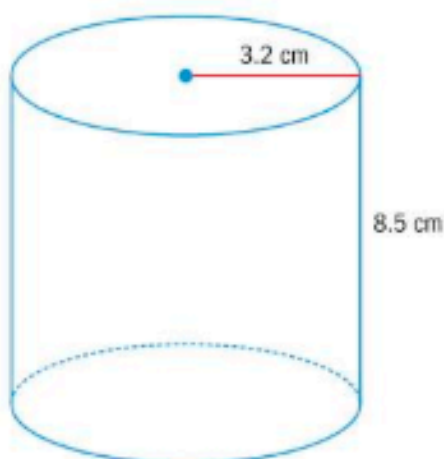
- 1 A swimming pool with the dimensions shown is filled with water. The cost to fill the pool is \$0.15 per cubic metre of water. Find the cost of filling the pool.



- 2 A ornament is made in the shape of a triangular prism. The ornament is made from mahogany, which has a density of  $0.71 \text{ g/cm}^3$ . Calculate the mass of the ornament.



- 3 A solid metal cylinder has the following dimensions.



The cylinder is melted down into 2 cm cubes.

How many cubes can be made?

- 4 Nasim fills a measuring jug with  $310 \text{ cm}^3$  of water. She pours the water into a cylindrical vase with radius 4 cm. Find the height of water in cm.
- 5 The volume of a regular hexagonal prism is  $2800 \text{ cm}^3$ . The height of the prism is 14 cm. Find the side of the hexagonal base in cm.

### TOK

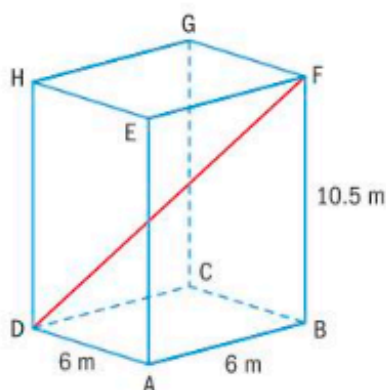
How is mathematical knowledge considered from a sociocultural perspective?

More on back □

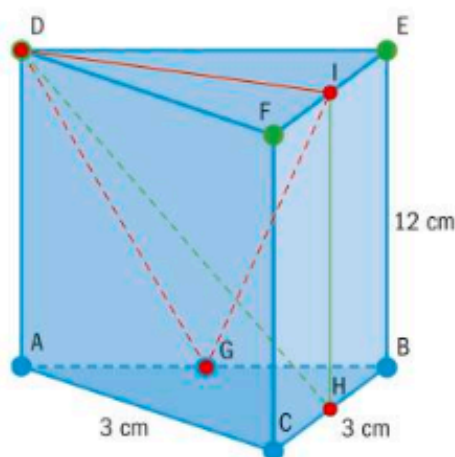
## Exercise 2F

- 1 A cuboid ABCDEFGH with dimensions 6 m by 6 m by 10.5 m is shown in the diagram below. Sketch the cuboid and mark the angles described below. Find:

- the length of [DF]
- the size of the angle between [DF] and base ABCD
- the size of the angle between [DF] and face DCGH.



- 2 A glass case in the shape of a regular triangular prism ABCDEF has a base with side 3 cm and height 12 cm. H is the midpoint of [BC], and G is the midpoint of [AB]. Sketch the prism and mark the angles described below. The case is to enclose an art piece in the shape of a triangle attached at D, G and I.



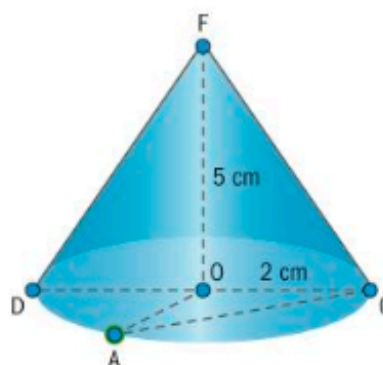
Find:

- the angle between [DC] and the base DEF
- the length of [GI]
- the length of [DG].

- 3 A heap of grain is shaped as a cone ADCF with height 5 m and base radius 2 m, as shown on the diagram. A and C are points on the circumference of the circular base of the cone and  $\angle AOC = 120^\circ$ .

Sketch the cone and label the angles described below. Find:

- the angle between [AF] and the base of the cone
- the slant height of the heap
- the angle between [AF] and [CF].



- 4 A cylinder with height 11 cm and radius 3 cm is shown in the diagram. D and O are the centres of the circular faces of the cylinder. A and C are two points on the circle with centre O, and  $\angle AOC = 20^\circ$ . Point B is on the edge of the top face of the circle. The lines [AB] and [OD] are parallel.

Find:

- the length of [AC]
- the length of [BC]
- the angle between [BC] and the base with centre O.

