Exercise 13A

Question 10:

Length of room = 10 m

Breadth of room = 10 m

Height of room = 5 m

$\therefore$ Length of the longest pole = length of diagonal

$$= \sqrt{l^2 + b^2 + h^2}$$

$$= \sqrt{10^2 + 10^2 + 5^2}$$

$$= \sqrt{100 + 100 + 25} = \sqrt{225} = 15\,\text{m}$$

$\therefore$ The length of the longest pole that can be put in a room with given Dimensions = 15 m.

Question 11:

Length of hall = 20 m

Breadth of hall = 16 m

Height of hall = 4.5 m

$\therefore$ Volume of hall = l x b x h

= (20 x 16 x 4.5) m^3

Volume of air needed per person = 5 m^3

$$\therefore \text{Number of persons} = \left(\frac{\text{Volume of the hall}}{\text{Volume of air needed per person}}\right)$$

$$= \left(\frac{20 \times 16 \times 4.5}{5}\right) = 288.$$

Question 12:

Length of classroom = 10m

Breadth of classroom = 6.4 m

Height of classroom = 5 m

Each student is given 1.6 m^2 of the floor area.

$$\text{Number of students} = \frac{(\text{area of the room})}{1.6}$$

$$= \frac{(10 \times 6.4)}{1.6} = \frac{64}{1.6} = 40$$

$\therefore$ Number of students = 40

$$\therefore \text{Air required by each student} = \left(\frac{\text{Volume of the room}}{\text{number of students}}\right) m^3$$

$$= \left(\frac{10 \times 6.4 \times 5}{40}\right) m^3 \left(\frac{320}{40}\right) m^3$$

$$= 8m^3$$

********** END **********