



## Diagonal of Cuboid and Cube

### A. Choose the correct answer:

- 1. The formula for the diagonal of a cuboid with length  $l$ , breadth  $b$ , and height  $h$  is:**
  - a)  $\sqrt{l + b + h}$
  - b)  $\sqrt{l^2 + b^2 + h^2}$
  - c)  $\sqrt{2l^2 + 2b^2 + 2h^2}$
  - d)  $\sqrt{lb + bh + hl}$
- 2. The formula for the diagonal of a cube with side  $a$  is:**
  - a)  $\sqrt{2} \times a$
  - b)  $\sqrt{3} \times a$
  - c)  $\sqrt{5} \times a$
  - d)  $2 \times a$
- 3. If the length, breadth, and height of a cuboid are all equal, the cuboid becomes a:**
  - a) Square
  - b) Cone
  - c) Cube
  - d) Cylinder
- 4. A cube has side 7 cm. Its diagonal is:**
  - a)  $7\sqrt{3}$  cm
  - b)  $7\sqrt{2}$  cm
  - c)  $14\sqrt{3}$  cm
  - d)  $7\sqrt{5}$  cm
- 5. In a cuboid, the longest distance between any two vertices is the:**
  - a) Edge
  - b) Height
  - c) Diagonal
  - d) Face

### B. Write the Missing Terms to Complete the Sentences:

1. Diagonal of a cuboid =  $\sqrt{\text{_____}}$
2. Diagonal of a cube = \_\_\_\_\_  $\times$  side
3. In a cube, all the edges are of \_\_\_\_\_ length
4. The diagonal of a cuboid joins \_\_\_\_\_ opposite vertices



5. Diagonal is measured in \_\_\_\_\_ units

**C. Figure out the answers to these questions:**

1. Find the diagonal of a cuboid with length 6 cm, breadth 8 cm, and height 10 cm.
2. Find the diagonal of a cube with side 9 cm.
3. Calculate the diagonal of a cuboid having length 3 m, breadth 4 m, and height 5 m.
4. A cuboid has dimensions 12 cm, 5 cm, and 9 cm Find its diagonal.
5. Find the diagonal of a cube whose side is 5 cm.

**D. Mark each sentence with a True (✓) or False (X):**

1. Diagonal of a cube is given by  $\sqrt{2} \times \text{side}$ . \_\_\_\_\_
2. In a cuboid, the diagonal is the longest straight line inside it. \_\_\_\_\_
3. Diagonal of a cuboid depends only on the length and breadth. \_\_\_\_\_
4. All diagonals of a cube are equal. \_\_\_\_\_
5. A cuboid with length = breadth = height is a cube. \_\_\_\_\_

**E. Challenge yourself with these questions:**

1. Find the diagonal of a cuboid with dimensions 10 cm, 24 cm, and 26 cm.
2. Find the length of the side of a cube whose diagonal is  $12\sqrt{3}$  cm.
3. Calculate the diagonal of a cuboid with length 15 cm, breadth 8 cm, and height 17 cm.
4. Find the diagonal of a cube with side 6 cm.
5. A cuboid has length 7 cm, breadth 24 cm, and height 25 cm Find its diagonal.