

Exercise 16.1

(i) a cuboid (ii) a cube

(i) Match bore, T

Civ Top of rectangular table

Clip Room

(iv) Book or notebook

CD Chalk base

(ii) Rubic's cube

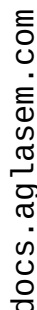
(iii) Dice

(11r) square box

Solution :-

RSWV, UVRQ, PTWS

QR, RS, PS, PT, WS, UQ, RV



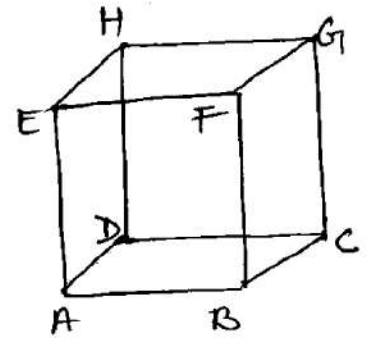
(2)

Q.3 Draw a diagram to represent a cube. Label its vertices as A, B, C, D, E, F, G and H. Now write the names of its faces and edges.

Solution

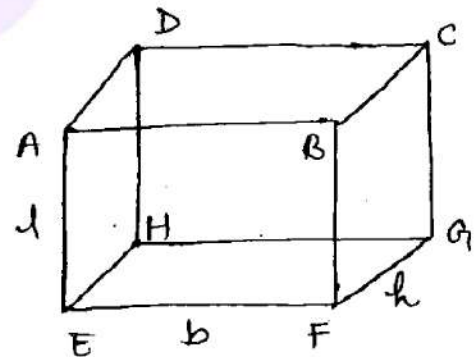
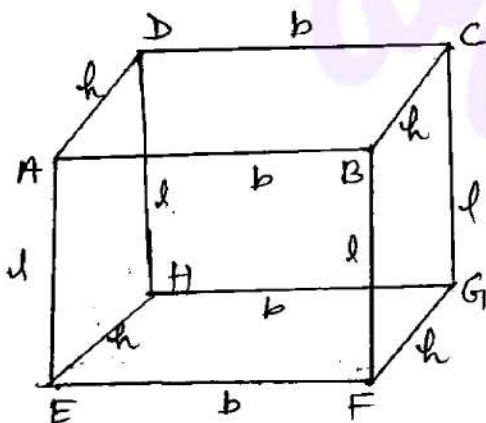
faces: ABCD, EFGH, ABFE, DCGH,
AEHD, BFGC

edges: AB, BC, CD, AD, EF, FG, GH, EH
AE, DH, BF, CG



Q.4 Fig 16.2 represents a cuboid. The lengths of the edges AE, EF and FG are indicated as l , b and h respectively. Indicate the lengths of all other edges.

Solution In given figure



Q.5 In fig 16.2, name the four diagonals of the cuboid.

Solution: Diagonals: BH, CE, AG, DF

Q.7 In fig 16.2, name the

- (i) face parallel to BFGC (ii) faces adjacent to BFGC
(iii) three edges which meet in the vertex G

Solution: (i) faces parallel to BFGC is AEHD

(ii) faces adjacent to BFGC are BCDA, DCGH, EFGH and ABFE.

(iii) Three edges which meet in the vertex G are EFGH, BCGF and GHDC

Q8 Fill in the blanks to make the following statements true:

- (i) A cuboid has _____ vertices.
(ii) A cuboid has _____ edges
(iii) A cuboid has _____ faces.
(iv) The number of lateral faces of a cuboid is _____.
(v) A cuboid all of whose edges are equal is called a _____.
(vi) Two adjacent faces of a cuboid meet in a line segment called its _____.
(vii) Each edge of a cuboid can be obtained as a line segment in which two _____ meet.
(viii) _____ edges of a cube (or cuboid) meet at each of its vertices.
(ix) A _____ is a cuboid in which all the six faces are squares.

(X) The three concurrent edges of a cuboid meet at a point called the _____ of the cuboid.

Solution: (i) eight (ii) twelve (iii) 6

(iv) four (v) cube (vi) edge (vii) adjacent faces

(viii) three (ix) cube (x) Vertex or corner.

Q.9 In each of the following, state if the statements are true (T) or false (F):

(i) Number of faces in a cuboid and the number of faces in a cube are equal.

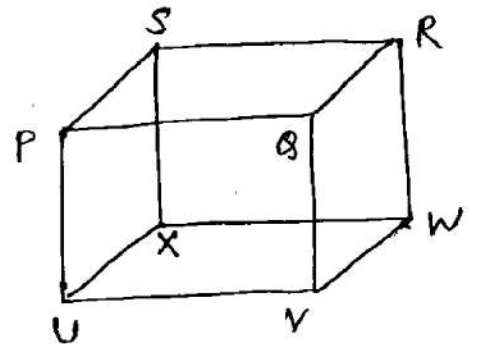
(ii) A cube has twelve vertices.

Solution: (i) True (ii) False

Q.10 For the cuboid shown in fig 16.3

(i) What is the base of this cuboid.

(ii) What are the lateral faces of cuboid



(iii) Name one pair of opposite faces. How many pairs of opposite faces are there? Name them.

(iv) Name all the faces of this cuboid which have X as a vertex. Also, name those which have VW as a side.

⑤

(v) Name the edges of this cuboid which meet at the vertex P. Also, name those faces which meet at this vertex.

Solution: (i) Box of cuboid = UVWX

(ii) lateral faces : UXSP, QVWR, SXWR, UVQP

(iii) one pair of opposite face = UVWX and PQRS

There are total three pair of opposite faces namely

(a) UVWX and PQRS (b) PSUX and QVWR

(c) PQVU and SXWR

(iv) Faces of cuboid having X as vertex = UVWX, SPUX and SXWR

Faces of cuboid having VW as side = QVWR, UVWX

(v) Edges, which meet at P = PU, PS and PQ

Faces meeting at P = PUVQ, PQRS, PUXS

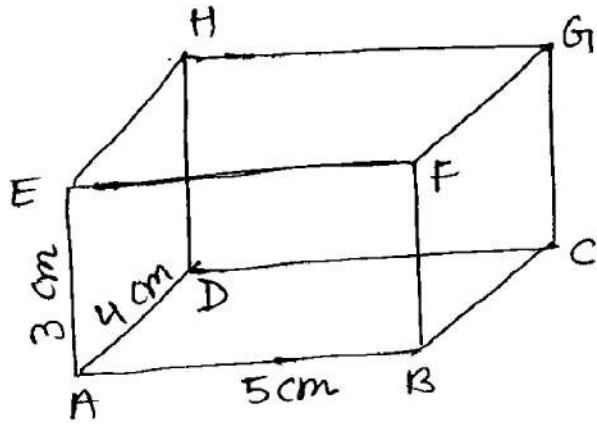
Q.11 The dimensions of a cuboid with vertices A, B, C, D, E, F, G and H are shown in Fig. 16.4.

(i) which edges are of length 4 cm? which edges are of length 5 cm

(ii) which faces have area equals to 20 cm^2

(iii) which face have the largest area? what is this largest area?

- (iv) which faces have a diagonal equals to 5 cm?
 (v) what is the area of the base of this cuboid?
 (vi) Do all the lateral faces have the same area?



Solution:

- (i) Edges of length 4 cm are : AD, BC, EH, FG
 Edges of length 5 cm are : AB, DC, EF, GH
- (ii) As we know that faces of cuboid are rectangles
 $\therefore \text{ar (ABCD)} = \text{length} \times \text{breadth}$
 $= 4 \times 5$
 $= 20 \text{ cm}^2$

also $\text{ar (ABCD)} = \text{area (EFGH)}$

hence, ABCD and EFGH are having area 20 cm^2

(iii) $\therefore \text{ar (ABCD)} = 4 \times 5 = 20 \text{ cm}^2$

$\text{ar (AEHD)} = 3 \times 4 = 12 \text{ cm}^2$

also $\text{ar (ABFE)} = 3 \times 5 = 15 \text{ cm}^2$

$\therefore$ Faces ABCD, EFGH are having largest area.

(iv)

In face ADHE

$$AH^2 = AD^2 + DH^2$$

$$AH^2 = 4^2 + 3^2$$

$$AH^2 = 16 + 9$$

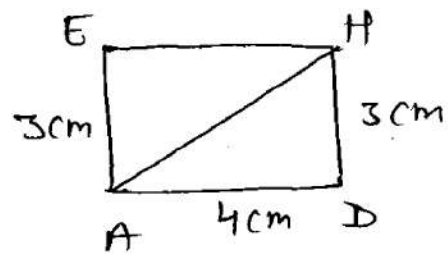
$$\Rightarrow AH^2 = 25 = (5)^2$$

$$\Rightarrow AH = 5 \text{ cm}$$

$\therefore$ faces ADHE and BCGF having diagonals equals to 5 cm.

$$\begin{aligned} \text{(v) Area of base} &= \text{area of ABCD} \left\{ \begin{array}{l} \text{length} = 5 \text{ cm} \\ \text{breadth} = 4 \text{ cm} \end{array} \right\} \\ &= 5 \times 4 \text{ cm}^2 \\ &= 20 \text{ cm}^2 \end{aligned}$$

(vi) No, all lateral faces not having same area.



(7)