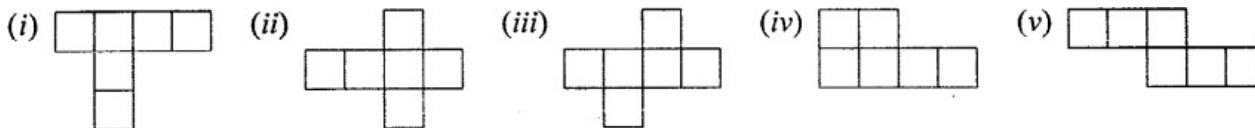


Recognition of Solids

EXERCISE 31

Question 1.

Identify the nets which can be used to form cubes :



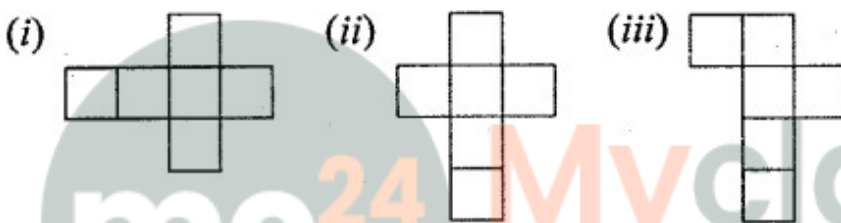
Solution:

Nets for a cube are (ii), (iii) and (iv).

Question 2.

Draw at least three different nets for making cube.

Solution:



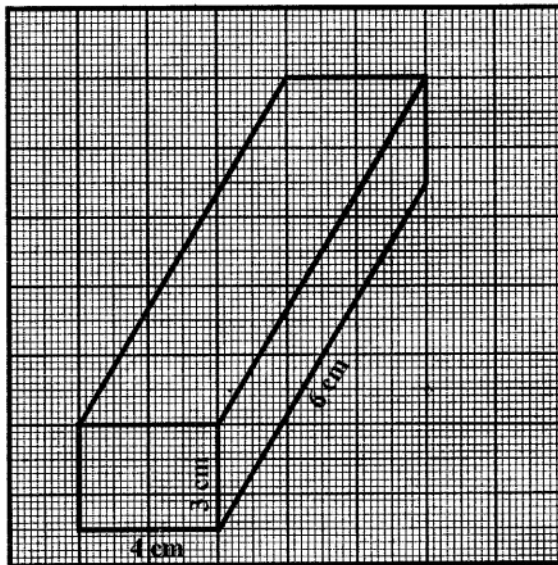
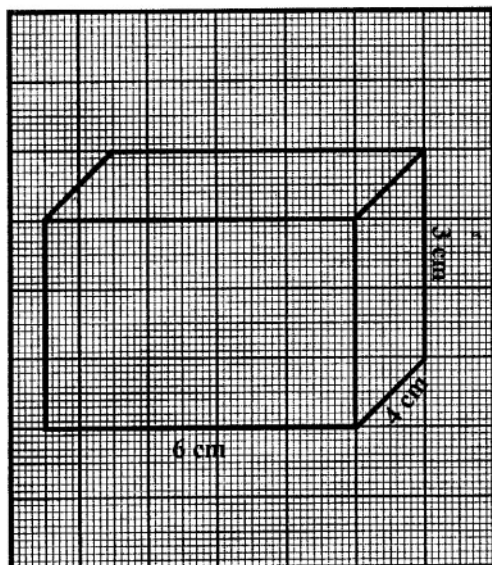
Question 3.

The dimensions of a cuboid are 6 cm, 4 cm and 3 cm. Draw two different types of oblique sketches for this cuboid.

Solution:

Sol. (i)

(ii)



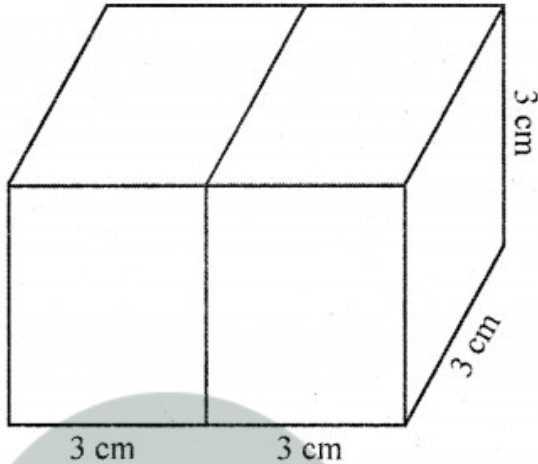
Question 4.

Two cubes, each with 3 cm edge, are placed side by side to form a cuboid. For this cuboid, draw :

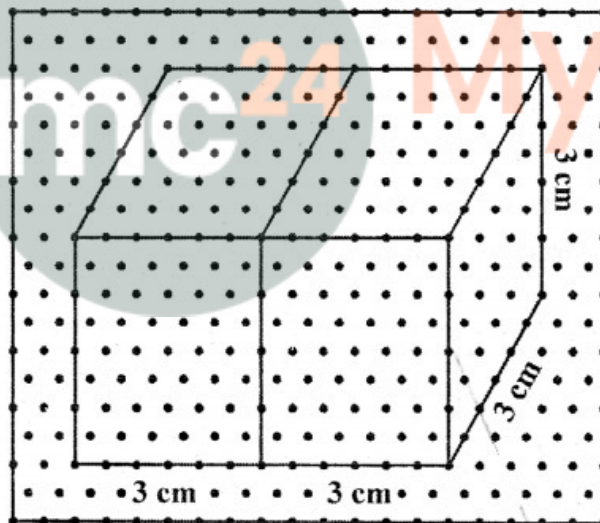
- (i) an oblique sketch
- (ii) an isometric sketch.

Solution:

(i)



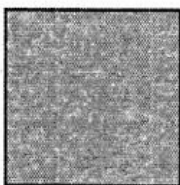
(ii)



Question 5.

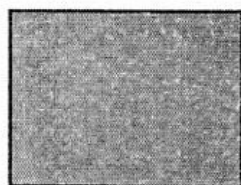
The figure, given below, shows shadows of some 3D objects, when seen under the lamp of an overhead projector :

(i)



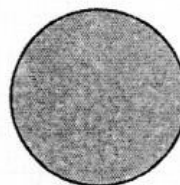
A square

(ii)



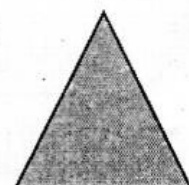
A rectangle

(iii)



A circle

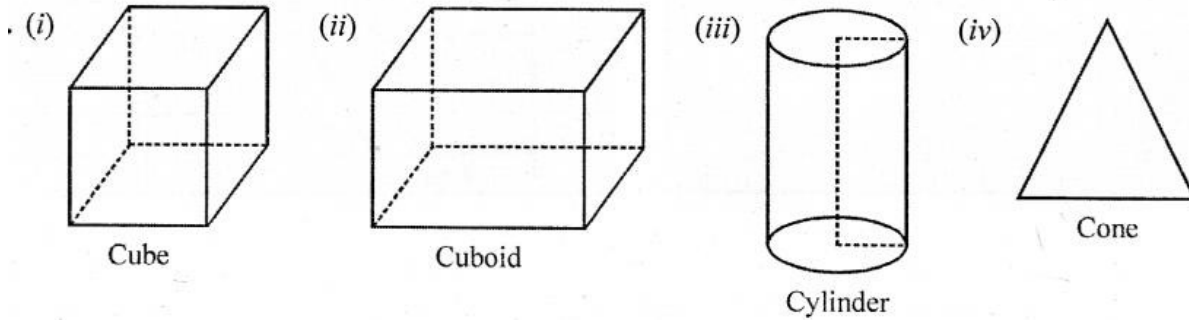
(iv)



A triangle

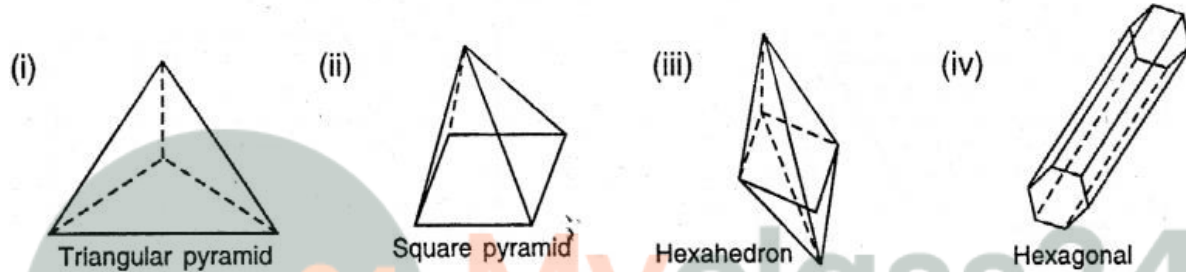
In each case, name the object.

Solution:



Question 6.

Look at the solids, drawn below, and fill the given chart.



Polyhedron	Faces (F)	Vertices (V)	Edges (E)	$F - E + V$
(a) Triangular pyramid				
(b) Square pyramid				
(c) Hexahedron				
(d) Hexagonal prism				

Solution:

Sol.	Polyhedron	Faces (F)	Vertices (V)	Edges (E)	$F - E + V$
(a)	Triangular pyramid	4	4	6	2
(b)	Square pyramid	5	5	8	2
(c)	Hexahedron	8	6	12	2
(d)	Hexagonal prism	8	12	18	2

P. Q. Using Euler's formula, find the values of a, b, c and d.

Faces	a	5	20	6
Vertices	6	b	12	d
Edges	12	9	c	12

Solution:

Faces	a	5	20	6
Vertices	6	b	12	d
Edges	12	9	c	12

(i) $a + 6 - 12 = 2 \Rightarrow a = 2 - 6 + 12 = 14 - 6 = 8$

(ii) $b + 5 - 9 = 2 \Rightarrow b = 2 + 9 - 5 = 6$

(iii) $20 + 12 - c = 2 \Rightarrow 32 - c = 2 \Rightarrow c = 32 - 2 \Rightarrow c = 30$

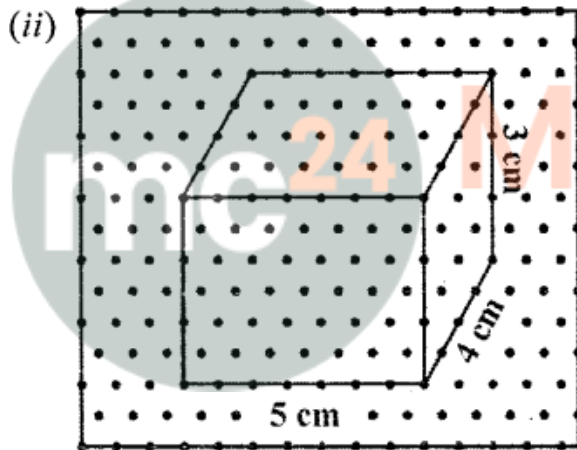
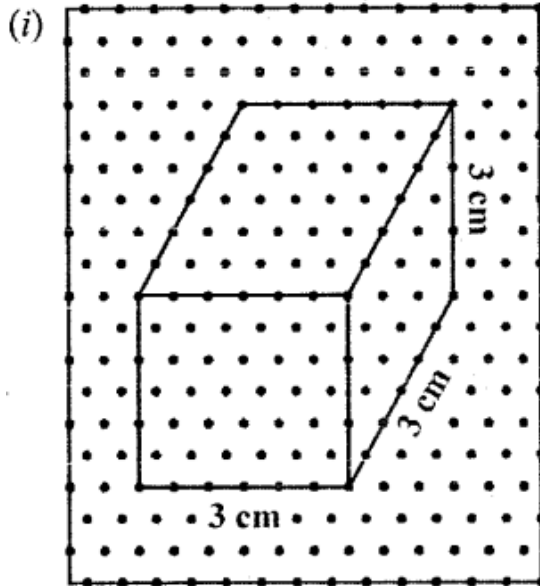
(iv) $6 + d - 12 = 2 \Rightarrow d - 6 = 2 \Rightarrow d = 2 + 6 = 8$

P.Q. Using an isometric dot paper, draw :

(i) a cube with each edge 3 cm.

(ii) a cuboid measuring 5 cm x 4 cm x 3 cm.

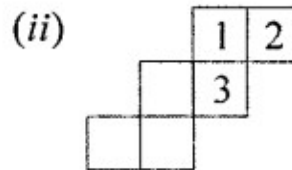
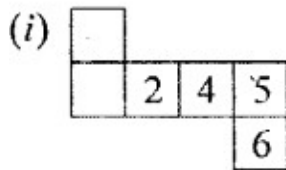
Solution:



Question 7.

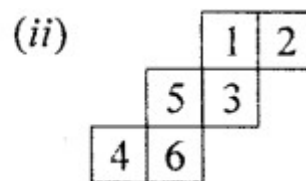
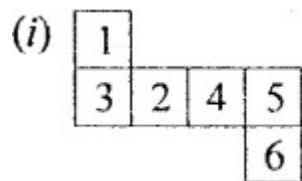
Dice are cubes with dot or dots on each face. Opposite faces of a die always have a total of seven on them.

Below are given two nets to make dice (cube), the numbers inserted in each square indicate the number of dots in it.



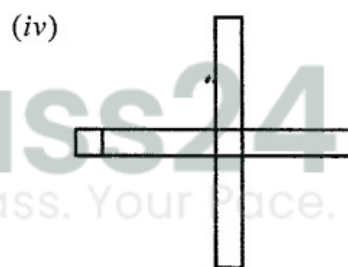
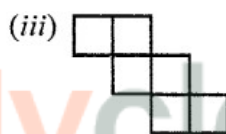
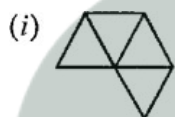
Insert suitable numbers in each blank so that numbers in opposite faces of the die have a total of seven dots.

Solution:



Question 8.

The following figure represents nets of some solids. Name the solids.



Solution:

The given nets are of the solid as given below :

- (i) Tetrahedron
- (ii) Triangular prism
- (iii) Cube
- (iv) Cuboid