Grade VII

Lesson : 15 VISUALISING SOLID SHAPES (osw)

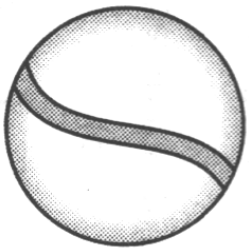
Objective Type Questions

I. Multiple choice questions

1. The name of given solid shape is

a) Cube b) Cone C) Cuboid d) Pyramid

2. The name of the solid shape is



a) Cylinder b) Sphere c) Cube d) None of these

3. Two cubes are places side by side. If the edge of cube is 2 cm, the length of resulting cuboid is

a) 2 cm b) 6 cm c) 4 cm d) 1cm

4. The shadow of a cone, when seen under the lamp of an overhead projector is

a) Square b) Rectangle c) Circle d) Triangle

5) A square pyramid has

a) Four faces b) Three faces

c) Five faces d) None of these

6) A cylinder has

a) 4 Vertices b) 3 vertices c) No vertex d) 2 vertices

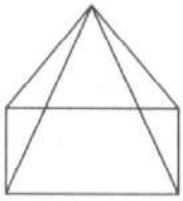
7) How many edges are there in a cuboid?

a) 3 b) 4 c) 5 d) 12

1) c	2) b	3) c	4) d	5) c	6) c	7) d

II. Multiple choice questions

1. The name of the given solid figure is



a) triangular pyramid

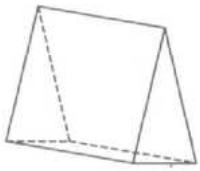
b) rectangular pyramid

c) rectangular prism

d) triangular prism

b) the name of the given sold figure is rectangle pyramid

2. The name of a the given solid figure is



a) triangular pyramid b) rectangular prismc) triangular prism d) rectangular pyramid

c) The name of the given solid figure is triangular prism.

3. All faces of pyramid are always

a) triangular **b) rectangular** **c) congruent** **d) None of these**

d) All faces of a pyramid are always based on the shape of pyramid. `

4. Out of the following, which is a 3- D figure? (NCERT)

a) Square **b) Sphere** **c) Triangle** **d) Circle**

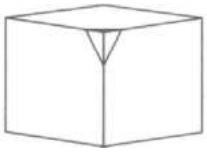
b) In the given option figures, only sphere is a 3-d figure.

5. Total number of edges a cylinder has

a) 0 **b) 1** **c) 2** **d) 3**

c) Total number if edges a cylinder has 2

6. When we cut a corner of a cube as shown in the figure, we get the cut-out piece as



a) square pyramid **b) trapezium prism**

c) triangular pyramid **d) a triangle**

c) If we cut a corner of a cube, then we get cut-out a piece in the form of triangular pyramid.

7. If we rotate a right angled triangle of height 5 cm and base 3 cm about its height a full turn, we get

a) cone of height 5 cm, base diameter 3 cm

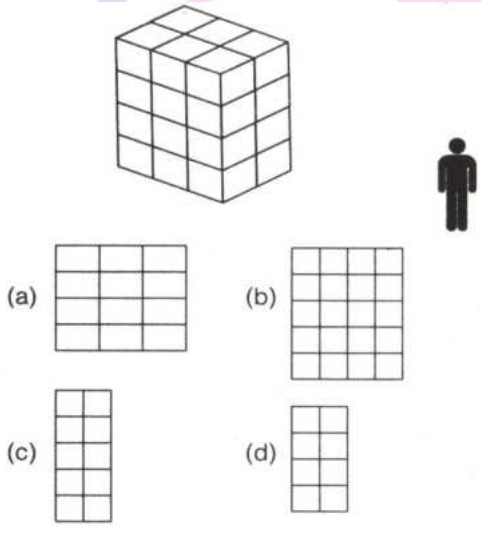
b) triangle of height 5 cm, base diameter 3 cm

c) cone of height 5 cm, base diameter 6 cm

d) triangle of height 5 cm, base diameter 6 cm

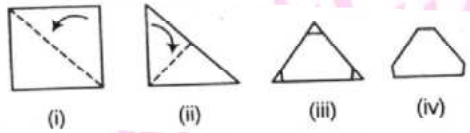
c) If we rotate a right angled triangle of height 5 cm and base 3 cm about its height a full turn. Then we get a cone of height 5 cm and base diameter 6cm.

8. Looking at the following object from the side, what will be the view?

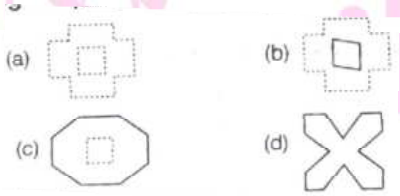


d) From the side view, we will see the option (d) image.

9. Take a square piece of paper as shown in fig(1). Fold it along its diagonals as shown in fig(ii). Again, fold it as shown in fig. (iii), Imagine that you have cut-off 3 pieces of the form of congruent isosceles right-angled triangles out of it as shown in figure 4.

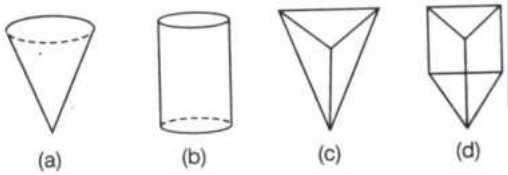


On opening the piece of paper, which of the following shapes will you get?



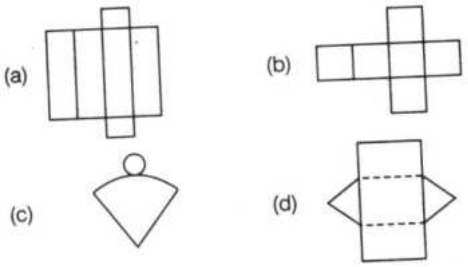
a) As per the given condition, if we open the piece of paper we will get option (a) figure.

10. Which of the following 3-dimensional figures has the top, side and front as triangles?



c) Option figure (c) will show all (top, side and front) view as triangle.

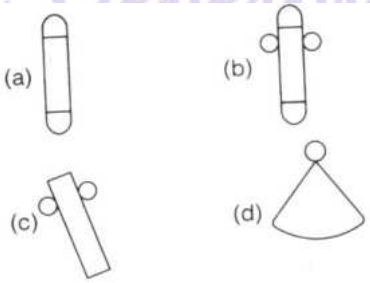
11. Which of these nets is a net of a cube?



b) Cube has all sides equal and in net (b) all the sides are equal. Hence, option (b) is correct.

12. Which of the following nets is a net of a cylinder?

c) The cylinder has two circles on the both ends and has a rectangular face. So option (c) is showing the exact net of a cylinder. Hence option (c) is correct.



III. Multiple choice questions

1. A solid that has only one vertex is

a) pyramid b) cube c) cone d) cylinder

2. A solid that has two opposite identical faces and other faces as parallelograms is a

a) prism b) pyramid c) cone d) sphere

3. The solid with one circular face, one cured surface and one vertex is know as

a) cone b) sphere c) cylinder d) prism

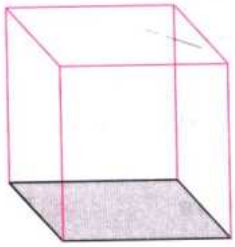
1. c	2. a	3. a

IV. Multiple choice questions

1. The name of the solid shape is

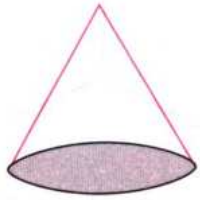
a) cone b) cylinder c) sphere d) cube

2. The name of the solid shape is



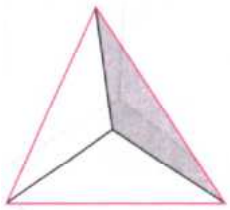
a) cube b) cylinder c) cone d) sphere

3. The name of the solid shape is



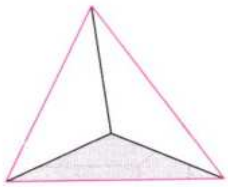
a) cylinder b) cone c) cuboid d) sphere

4. The name of the solid shape is



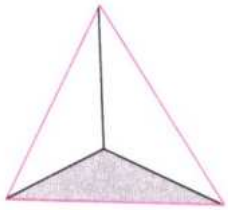
a) cylinder b) cone c) cuboid d) sphere

5. The number of vertices of the solid shape is



a) 1 b) 2 c) 3 d) 4

6. The number of faces of the solid shape is

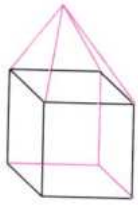


a) 1 b) 2 c) 3 d) 4

7. The number of edges of the solid shape is

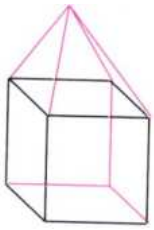
a) 1 b) 2 c) 3 d) 6

8. The number of vertices of the solid shape is



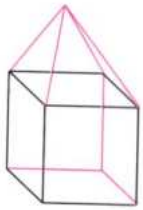
a) 9 b) 4 c) 6 d) 8

9. The number of faces of the solid shape is



a) 4 b) 6 c) 9 d) 8

10. The number of edges of the solid shape is



a) 16 b) 9 c) 6 d) 4

11. What cross-section do you get when you give a horizontal cut to a die?

a) Square b) rectangle c)Triangle d) circle

12. What cross-section do you get when you give a vertical cut to a brick?

a) Square b) rectangle c)Triangle d) circle

13. What cross-section do you get when you give a horizontal cut to a brick?

a)Triangle b) circle c) Square d) rectangle

14. What cross-section do you get when you give a vertical cut to a round apple?

a) circle b) Triangle c) Square d) rectangle

15. What cross-section do you get when you give a horizontal cut to a round apple?

a) circle b) Square c) rectangle d) Triangle

16. What cross-section do you get when you give a vertical cut to an ice-cream cone?

a)Triangle b) circle d) rectangle d) Square

17. What cross-section do you get when you give a horizontal cut to an ice-cream cone?

a)Triangle b) circle d) rectangle d) Square

1. b	2. a	3. b	4. d	5. d	6. d	7.d	8. a	9. c	10. a
11. a	12. a	13. d	14. a	15. a	16. a	17. b			

Hints / Solutions

I. Fill in the Blanks

1) The common portion of two adjacent faces of a cuboid is called a / an **edge**.(NCERT)

2. A plane surface of a solid enclosed by edges is called a/ an **face.**

3. The corners of solid shapes are called its **vertices.**

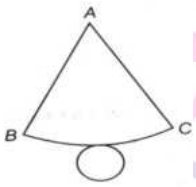
4. An example of solid with no vertex is **sphere.**

5. A triangular prims has **5** faces, **9** edges and **6** vertices.

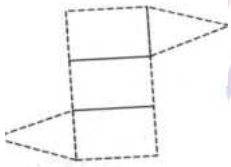
6. A triangular pyramid has **4** faces, **6** edges and **4** vertices. (NCERT)

7. A square pyramid has **5** faces, **8** edges and **5** vertices.

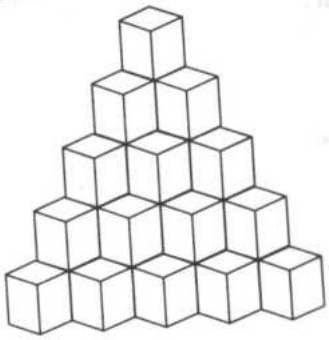
8. Out of **5** faces of a triangular prism, **3** are rectangles and **2** are triangles.

9. 

is a net of a **cone**

10. 
is a net of a **triangular prism**

11. Identical cubes are stacked in the corner of a room as shown below. The number of cubes that are not visible are **20.**

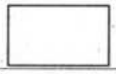


I. True or False

1. In oblique sketch of the solid, the measurements are kept proportional (NCERT) - **False**
2. An isometric sketch does not have proportional length. - **False**
3. A cylinder has no vertex. - **True**
4. All the faces, except the base of a square pyramid are triangular. (NCERT) - **True**
5. A pyramid has only one vertex. - **False**
6. A triangular prism has 5 faces,9 edges and 6 vertices(NCERT) - **True**
7. If the base of a pyramid is a square, it is called a square pyramid. - **True**
8. A rectangular pyramid has 5 rectangular faces. - **False**
9. While rectangle is a 2-D figure, cuboid is a 3-D figure. - **True**
10. While sphere is a 2-D figure, circle is a 3-D figures. (NCERT) – **False**

I. Match the following

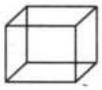
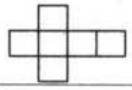
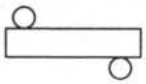
1. Match the Column A with Column B.

Column A		Column B
(i)		(a) Triangle
(ii)		(b) Rectangle
(iii)		(c) Trapezium
(iv)		(d) Cylinder

i) b	ii) d	iii) a	iv) c

II. Match the following

2. Match the Column A with Column B.

Column A		Column B	
(i)		(a)	
(ii)		(b)	
(iii)		(c)	

i) b	ii) c	iii) a

I. Very Short Answer Questions

1. How many faces does a cube have?

   6.

2. How many faces does a square pyramid has?

   5

3. How many edges does a a cube has?

   12

4. Name a solid which has no vertex

   Sphere

5. Name a solid which has only one vertex

   Cone

II Very Short Answer Questions

1. Which pyramid is called tetrahedron?

   Triangular pyramid.

2. Which prism is called a cube?

   Square prism

3. How many vertices are there in a pentagonal pyramid?

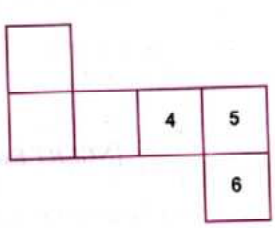
   Six

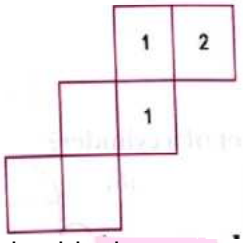
4. How many vertices are there in a rectangular pyramid?

   Five

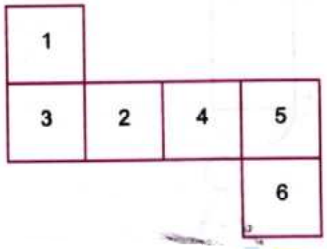
5. Dice are cubes with dots on a each face. Opposite faces of a die always have a total of seven dots on them.

Here's a met to make dice (cube); the numbers inserted in each square indicate the number of dots in the box





Insert suitable numbers in the blanks, remembering that the number on the opposite faces should total no.7.

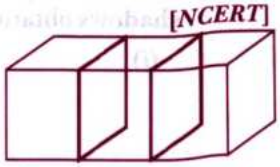
6. Use ison 

etric sketch for the given shape :

7. Three cubes each with 2 cm edge are placed side by side to form a cuboid. Sketch an oblique or isometric sketch of this cuboid.

The adjoining figure is an isometric sketch of a cuboid formed by placing three cubes each of 2 cm edge side by side.

[NCERT]



I Short Answer Questions

1. For a pyramid there are 4 faces and vertices. Find the number of edges.

For a pyramid, faces and vertices are given by

$F - E + V = 2$

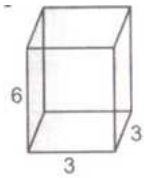
$4 - E + 4 = 2$ (F=4 and V =4)

$\Rightarrow 8 - E = 2$

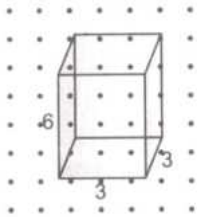
$\Rightarrow E = 8 - 2 = 6$

Hence, there are 6 edges.

2. Here is an oblique sketch of a cuboid.



Draw an isometric sketch that matches this drawing.



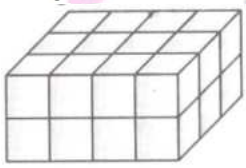
3. Match the two dimensional figure with the names.

(a)		(i)	Circle
(b)		(ii)	Rectangle
(c)		(iii)	Square
(d)		(iv)	Quadrilateral
(e)		(v)	Triangle

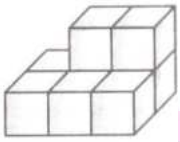
After matching the two-dimensional figures, their corresponding names are given below:

(i)		(a)	Rectangle
(ii)		(b)	Circle
(iii)		(c)	Triangle
(iv)		(d)	Square
(v)		(e)	Quadrilateral

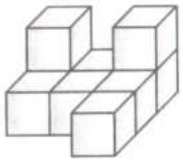
4. Try to guess the number of cubes in the following arrangements in the figure



(a)



(b)



(c)

Number of cubes in the given arrangements are as follows:

a) Cubes b) 8 cubes c) 9 cubes

II Short Answer Questions

1. Two dice are placed side by side as show : Can you say what the total would be on the face opposite to.

(i) 5 + 6? (ii) 4 + 3 ?

(Remember that in a die sum of numbers on opposite faces is 7)

i) The total of opposite to face 5 + 6 is 2 + 1 i.e. 3

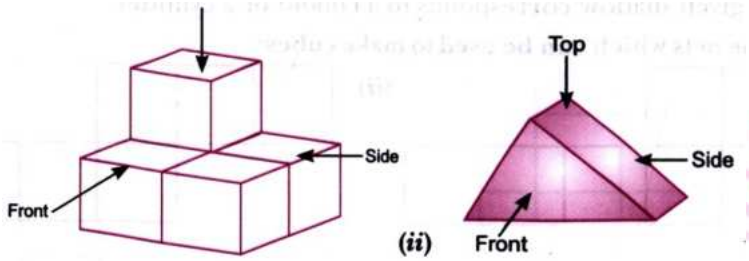
ii) The total of opposite to face 4 + 3 is 3 + 4 i.e. 7.

2. Examine if the following are true statements:

i) The cube can cast a shadow in the shape of a rectangle.

ii) The cube can cast a shadow in the shape of a hexagon.

3. For each solid, the three views (1), (2), (3) are given, Identify for each solid the corresponding top, front and side views.



i) (1) → Front, (2) → Top, (3) → Side

ii) (1) → Front, (2) → Side, (3) → Top

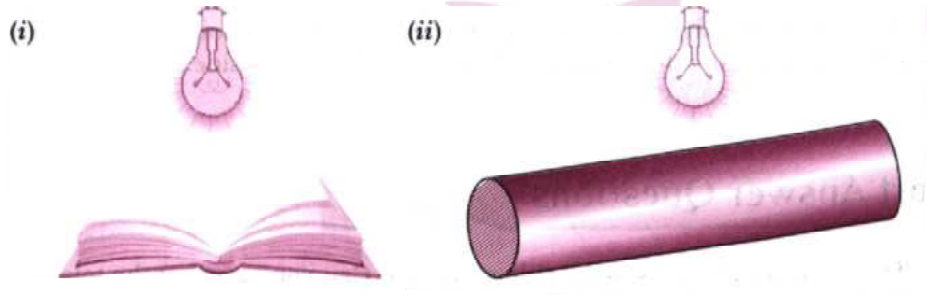
4. What cross-sections do you get when you give a

i) vertical cut ii) horizontal cut to the following solids?

a) A circular pipe b) An ice cream cone

	Solid	Shape of cross- section for vertical - cut	Shape of cross- section for horizontal - cut
a)	A circular pipe	Circle	Rectangle
b)	An Ice-cream cone	Triangle	Circle

5. A bulb is kept burning just right above the following solids. Name the shape of the shadows obtained in each case. Give a rough sketch of the shadow.

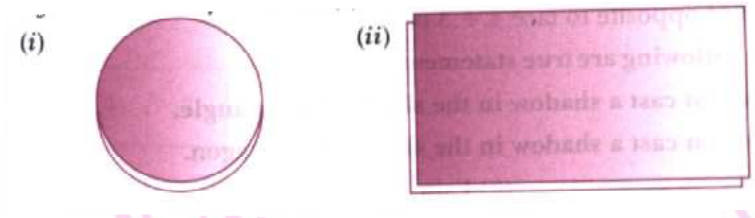


When light falls just above the solid i.e.

i) The shadow of a cylindrical pipe looks like a rectangle

ii) A book, the shadow looks like nearly a rectangle.

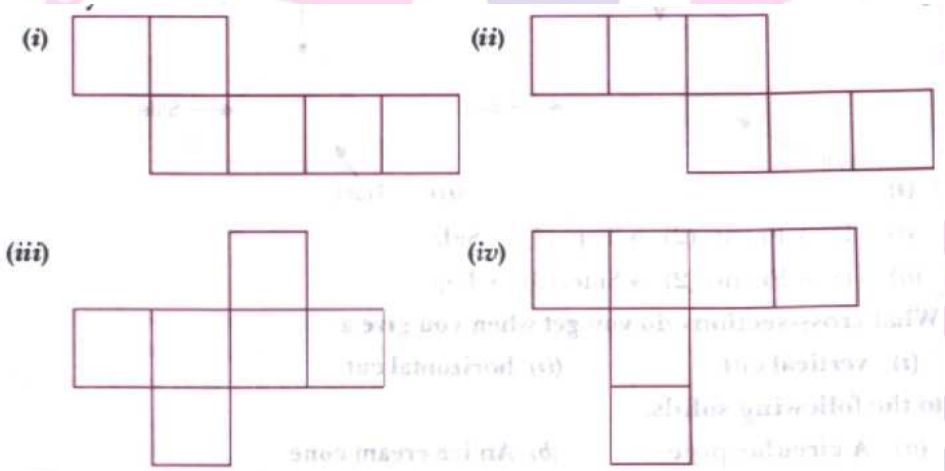
6. Here are the shadows of some 3-D objects, when seen under the lamp of an overhead projector. Identify the solid (s) that match each shadow.



i) The given shadow corresponds to a sphere

ii) The given shadow corresponds to a cuboid or a cylinder.

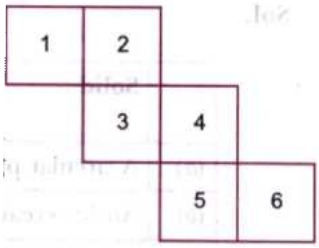
7. Identify the nets which can be used to make cubes:



Sol (ii) and (iii) can be used to make cubes.

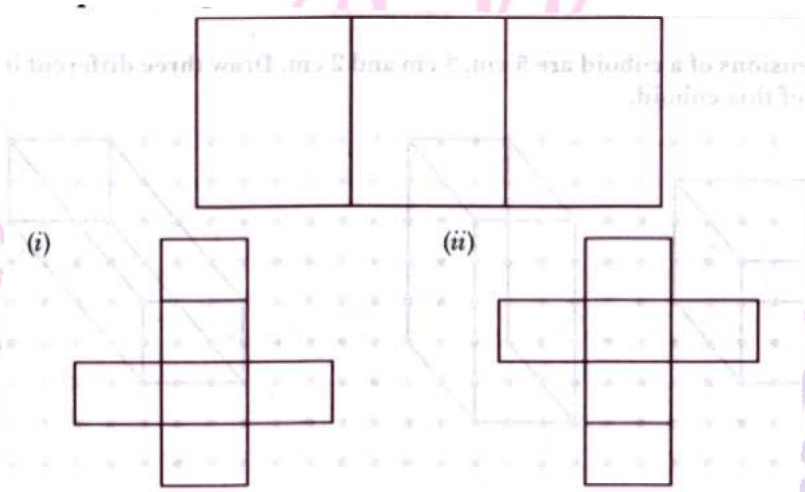
8. Can this be a net for a die? Explain your answer. (NCERT)

No because one pair of opposite faces will have 1 and 4 on them whose total is not equal to 7. Another faces are having 3 and 6 on them whose total is also not equal to 7.

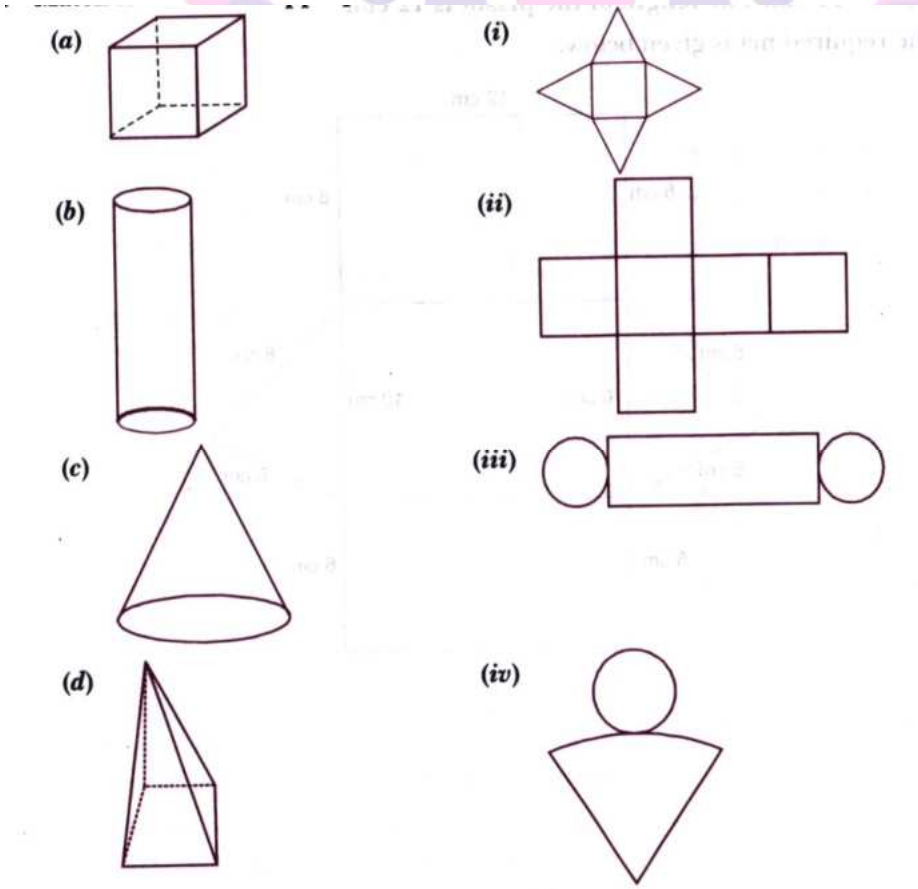


9. Hers is an incomplete net for making a cube. Complete it in at least two different ways. Remember that a cube has six faces. How many are there in the net here ? (NCERT)

(Give two separate diagrams)



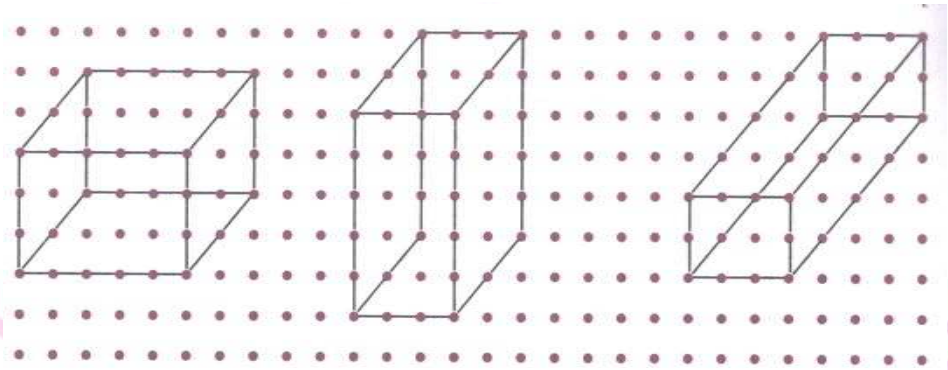
10. Match the nets with appropriate solids:



a) - (ii) b) - (iii) c) - (iv) d) – (i)

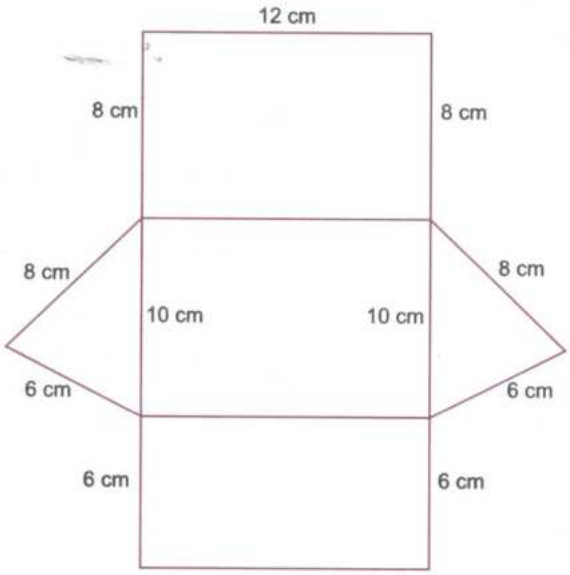
Long Answer Questions

1. The dimension of a cuboid are 5 cm, 3 cm and 2 cm. Draw three different isometric sketches of this cuboid.

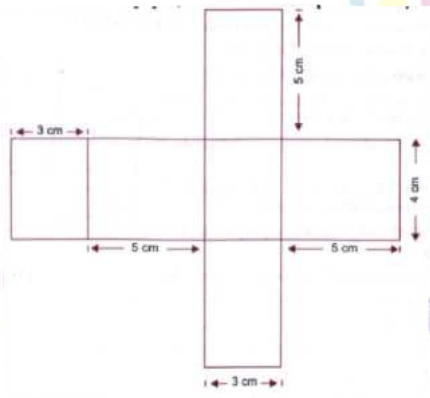


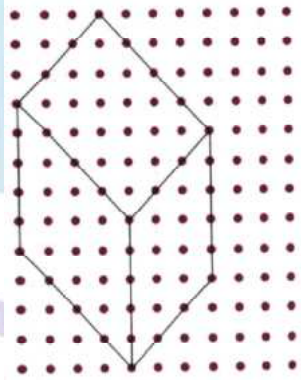
2. Sketch the net of a triangular prism whose ends are right triangles of sides 6cm, 8 cm and 10 cm. The length of the prism is 12 cm.

The required net is given below.



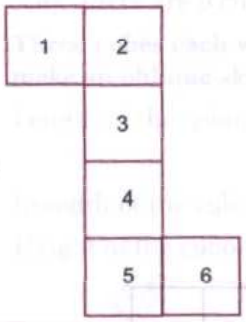
3. Using an isometric dot paper, draw the solid shape formed by the net given below. :





The given net is that of a cuboid of dimensions as 5cm x 4 cm x 3cm. The solid shape formed is shown in the following figure.

4. Look at the adjoining figures given below of the net of a cube. How will you fold the various faces to make a cube?



We can fold the given faces in the following manner to obtain a solid cube.

Step 1: Keep the face 3 as the base of the cube.

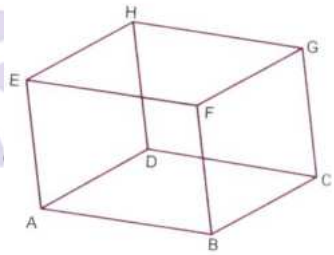
Step II : Fold and bring the faces 3 and 4 opposite to each other.

Step III :Fold and bring the face 5 opposite to face 3.

Step IV : Fold and bring the faces 1 and 6 opposite to each other.

Thus we get the required cube.

5. In the figure of a cube,



i) Which edge is the intersection of faces EPGH AND EFBA?

ii) Which faces intersect at edge FB?

iii) Which three faces form the vertex A?

iv) Which vertex is formed by the faces ABCD, ADHE AND CDH

v) Give all the edges that are parallel to edge AB.

vi) Give the edges that are neither parallel nor perpendicular to edge BC.

vii) Give the edges that are perpendicular to edge AB.

viii) Give four vertices that do not lie in one plane.

i) EF is the intersection of faces EFGH and EFBA.

ii) ABFE, BFGC are the faces that interact at FB.

iii) ABEF, ABCD, ADHE are three faces from the vertex A.

iv) D is the common vertex formed by these faces.

v) CD, EF, GH, are edges parallel to edge AB.

vi) AE, EF, GH, HD are neither parallel nor perpendicular to edge BC.

vii) AE,BF, AD, BC are perpendicular to edge AB.

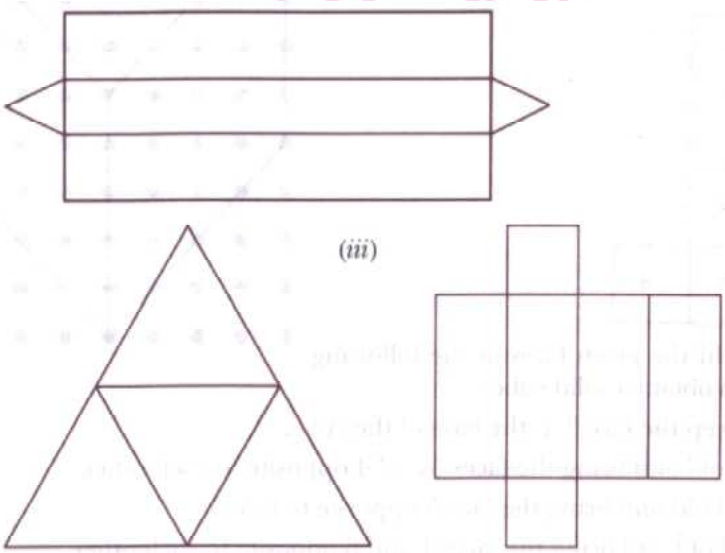
viii) Several group of points like A, E, C and B.

6. Draw the nets of the following : (NCERT)

i) Triangular prism

ii) Tetrahedron

iii) Cuboid



7. Draw the net of triangular pyramid with base as equilateral triangle of side 3 cm and slant edges 5 cm