CHAPTER 10

VISUALISING SOLID SHAPES

Points to Remember

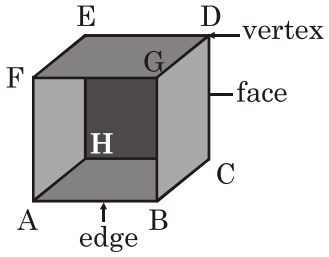
- Plane shapes having two measurements like length and breadth are called two dimensional shapes (2-D).
- Solid shapes having three measurements like length, breadth and height or depth are called three dimensional shapes (3-D).
- In polyhedron relationship between no. of faces (F), vertices (V) and edges (E) is

  $$F + V - E = 2$$

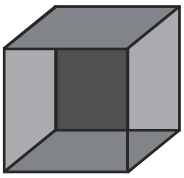
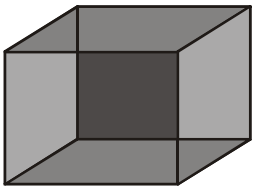
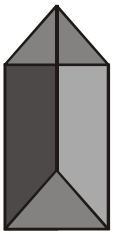
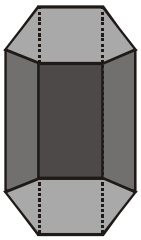
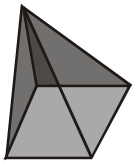
  It is also called Euler's Formula.
- **Prism :** A polyhedron whose base and top are congruent polygon and whose other faces are parallelogram.
- **Pyramid :** *A* polyhedron whose base is a polygon and whose lateral faces are triangles with a common vertex.
- Faces : *ABCH, BCDG, EFGD, EFAH, DEHC, ABGF*

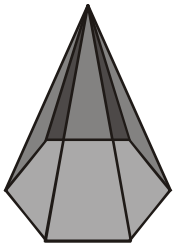
  Edges : *AB, BC, CH, AH, FG, GD, DE, EF, AF, HE, BG, CD*

  Vertices : *A, B, C, D, E, F, G, H*



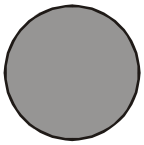
THE NUMBER OF FACES, EDGES AND VERTICES FOR THE FOLLOWING POLYHEDRONS

S. No.	*Figure*	*Type of Polyhedron*	*No. of Faces F*	*No. of Vertices V*	*No.of Edges E*
1.		Prism with square base	6	8	12
2.		Prism with rectangular base	6	8	12
3.		Prism with triangular base	5	6	9
4.		Prism with Hexagonal base	8	12	18
5.		Pyramid with square base	5	5	8
6		Pyramid with triangular base	4	4	6

7.		Pyramid with Hexagonal base	7	7	12

QUESTIONS

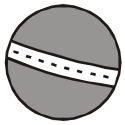
1. Name the shape and also tell the type of the given figure.



2. Name the shape and also tell the type of the given figure.

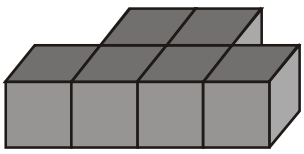
3. Name the shape and also tell the type of the given figure.

4. Name the shape and also tell the type of the given figure.

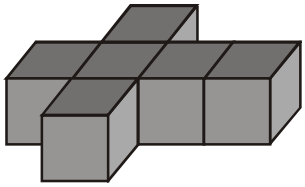


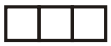
5. Name the shape and also tell the type of the given figure.

6. Find the odd one out : book, cylinder, square, cone.
7. Find the odd one out : coin, birthday cap, match box, triangle.
8. Find the odd one out : triangle, sphere, rectangle, circle.
9. Find the odd one out : bangle, circle, square, triangle.
10. Find the odd one out : Football, Table, Chalk, Floor.
11. How many no. of squares are visible in the top, view of the given figure.

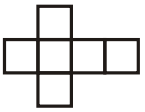


12. In the given solid identify the top. Front and side view.

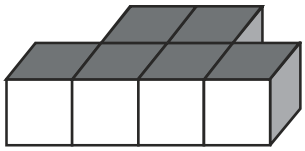


(*i*) 

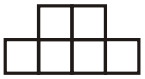
(*ii*) 

(*iii*) 

13. In the given solid identify the top, Front and side view.

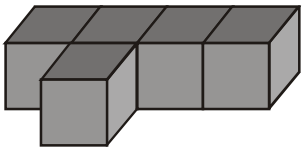


(*i*) 

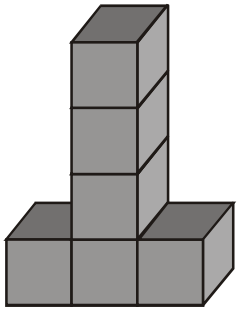
(*ii*) 

(*iii*) 

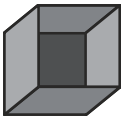
14. In the given solid how many no. of squares are visible in the side view of the given figure.



15. In the given solid how many no. of squares are visible in the front view of the given figure.

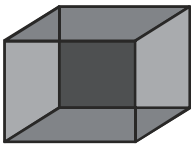


16. Find the no. of faces in the given figure.

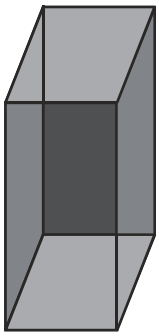


17. Find the no. of vertices in the given figure.

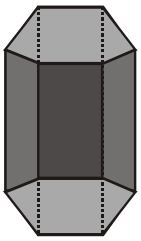
18. Find the no. of edges in the given figure.



19. Find the no. of faces in the given figure.



20. Find the no. of faces in the given figure.



21. Find the no. of faces in a Prism with square base.
22. Find the no. of faces in a Prism with hexagonal base.
23. Find the no. of faces in a Prism with triangle base.
24. Find the no. of edges in a triangular Prism.
25. Find the no. of edges in a Prism with hexagonal base.
26. Find the no. of edges in a Prism with square base.
27. Find the no. of vertices in a Prism with square base.
28. Find the no. of vertices in a Prism with hexagonal base.
29. Find the no. of vertices in a triangular Prism.
30. Find the no. of faces in a Pyramid with square base.
31. Find the no. of faces in a Pyramid with hexagonal base.
32. Find the no. of faces in a Pyramid with triangular base.
33. Find the no. of edges in a triangular Pyramid.
34. Find the no. of edges in a Pyramid with hexagonal base.

35. Find the no. of edges in a Pyramid with square base.
36. Find the no. of vertices in a Pyramid with square base.
37. Find the no. of vertices in a Pyramid with hexagonal base.
38. Find the no. of vertices in a Pyramid with triangular base.
39. Find the no. of edges in a Pyramid with pentagon base.
40. Find the no. of edges in a Prism with pentagon base.
41. Find the no. of vertices in a Pyramid with pentagon base.
42. Find the no. of vertices in a Prism with pentagon base.
43. Find the no. of faces in a Pyramid with pentagon base.
44. Find the no. of faces in a Prism with pentagon base.
45. In a polyhedron there are 8 vertices and 12 edges find its no. of faces.
46. In a polyhedron there are 8 edges and 5 faces find its no. of vertices.
47. In a polyhedron there are 5 faces and 6 vertices find its no. of edges.
48. A polyhedron has 8 faces, 12 vertices find its no. of edges.
49. A polyhedron has 6 edges and 4 faces find its no. of vertices.
50. A polyhedron has 7 vertices and 12 edges. Find its no. of faces.

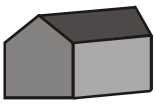
ANSWERS

1. Circle, 2-D
2. Cone, 3-D
3. Triangle, 2-D
4. Sphere, 3-D
5. Cuboid, 3-D
6. Square
7. Triangle
8. Sphere
9. Bangle
10. Floor
11. 6
12. (*i*) Side view (*ii*) Front view (*iii*) Top view
13. (*i*) Front view (*ii*) Top view (*iii*) Side view
14. 2
15. 6
16. 6
17. 8
18. 12
19. 6
20. 8
21. 6
22. 8

23.	5	24.	9
25.	18	26.	12
27.	8	28.	12
29.	6	30.	5
31.	7	32.	4
33.	6	34.	12
35.	8	36.	5
37.	7	38.	4
39.	10	40.	15
41.	6	42.	10
43.	6	44.	7
45.	6	46.	5
47.	9	48.	18
49.	4	50.	7

TEST YOUR KNOWLEDGE

1. Find the sum of dots visible in this dice.
2. What is the shape of bangle?
3. Shape of unsharpened pencil is prism or pyramid.
4. Can a polyhedron have 10 faces, 20 edges and 15 vertices?
5. A polyhedron has 7 faces and 10 vertices. Find its no. of edges.



6. Name the polygon formed in the front side of the figure.
7. Find 3-D figures from the following ball, cylinder, triangle.
8. Find the no. of faces in a cube.

9. What is the shape of top view of this cup.
10. Find the no. of edges in a match box.

ANSWERS

1. 6
2. Cylinder
3. Prism
4. No.
5. 15
6. Pentagon
7. Ball, cylinder
8. 6
9. Circle
10. 12.