
















EXERCISE 10.1

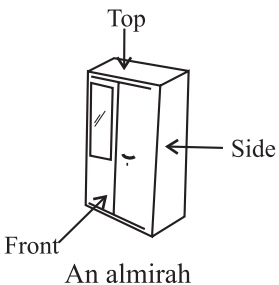

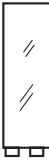

1. For each of the given solid, the two views are given. Match for each solid the corresponding top and front views. The first one is done for you.

	Object	Side view	Top view
(a)	 A bottle	(i) 	(i) 
(b)	 A weight	(ii) 	(ii) 
(c)	 A flask	(iii) 	(iii) 
(d)	 Cup and Saucer	(iv) 	(iv) 
(e)	 Container	(v) 	(v) 

Note: Arrows indicate that (a) matches (i) and (iii), and (c) matches (iv) and (v).

2. For each of the given solid, the three views are given. Identify for each solid the corresponding top, front and side views.

(a)

Object	(i)	(ii)	(iii)
 An almirah			

(b) **Object**

Top
Front
Side

A Match box

(i)

(ii)

(iii)

(c) **Object**

Top
Front
Side

Television

(i)

(ii)

(iii)

(d) **Object**

Top
Front
Side

A Car

(i)

(ii)

(iii)

3. For each given solid, identify the top view, front view and side view.

(a)

Top
Front
Side

(i)

(ii)

(iii)

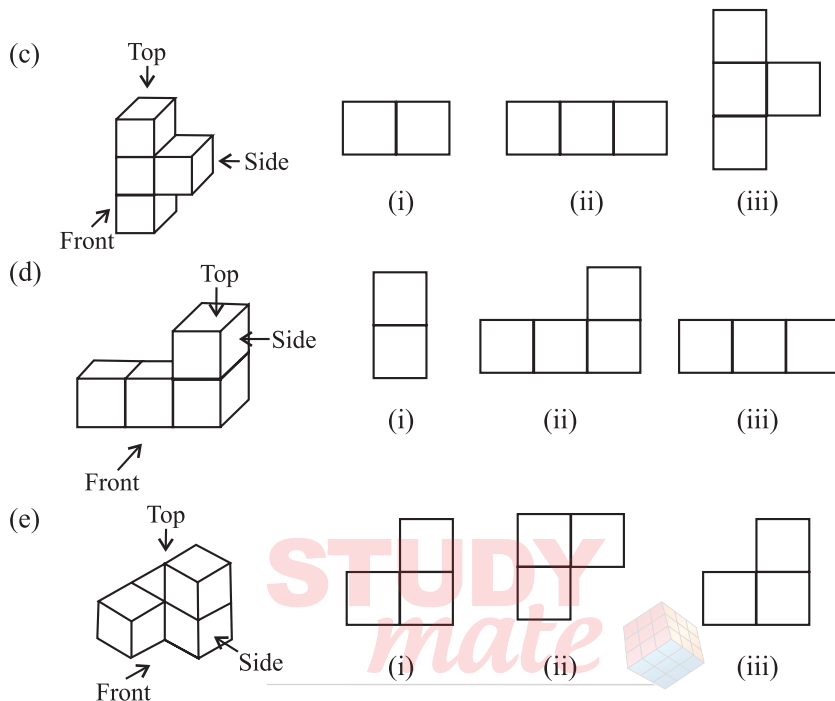
(b)

Top
Front
Side

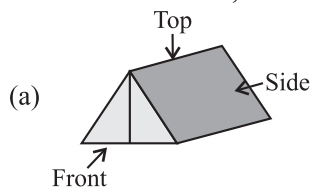
(i)

(ii)

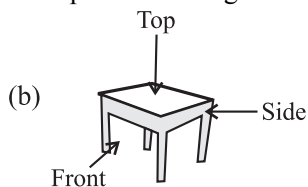
(iii)



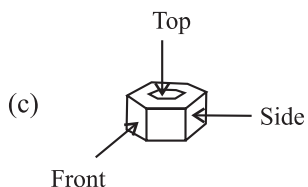
4. Draw the front view, side view and top view of the given objects.



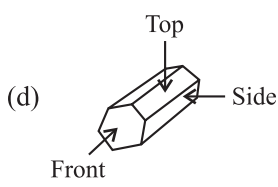
A Military Tent



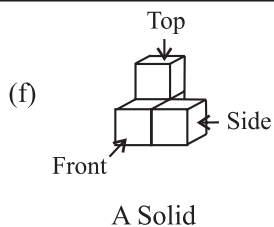
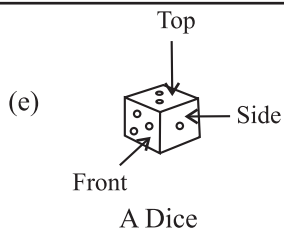
A Table



A Nut



A hexagonal block



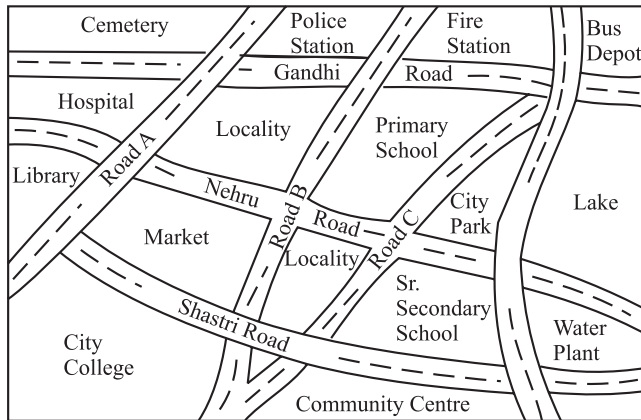
TEST YOURSELF (VSS-1)

1. Match the following pictures (objects) with their shapes:

	Object	Picture	Shape
(i)	An agricultural field		Two rectangular cross paths inside a rectangular park.
(ii)	A groove		A circular path around a circular ground.
(iii)	A toy		A triangular field adjoining a square field.
(iv)	A circular park		A cone taken out of a cylinder.
(v)	A cross path		A hemisphere surmounted on a cone.

EXERCISE 10.2

1. Look at the given map of a city.



Answer the following.

- Colour the map as follows: Blue-water, red-fire station, orange-library, yellow - schools, Green - park, Pink - College, Purple - Hospital, Brown - Cemetery.
 - Mark a green 'X' at the intersection of Road 'C' and Nehru Road, Green 'Y' at the intersection of Gandhi Road and Road A.
 - In red, draw a short street route from Library to the bus depot.
 - Which is further east, the city park or the market?
 - Which is further south, the primary school or the Sr. Secondary School?
- Draw a map of your class room using proper scale and symbols for different objects.
 - Draw a map of your school compound using proper scale and symbols for various features like play ground main building, garden etc.
 - Draw a map giving instructions to your friend so that she reaches your house without any difficulty.

EXERCISE 10.3

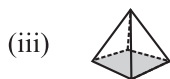
- Can a polyhedron have for its faces
 - 3 triangles?
 - 4 triangles?
 - a square and four triangles?
- Is it possible to have a polyhedron with any given number of faces? (Hint: Think of a pyramid).
- Which are prisms among the following?



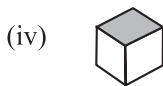
A nail



Unsharpened pencil



A table weight



A box

- How are prisms and cylinders alike?
 - How are pyramids and cones alike?
- Is a square prism same as a cube? Explain.
- Verify Euler's formula for these solids.



(i)



(ii)

- Using Euler's formula find the unknown.

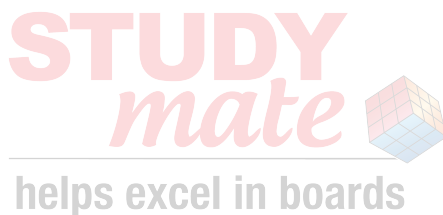
Faces	?	5	20
Vertices	6	?	12
Edges	12	9	?

- Can a polyhedron have 10 faces, 20 edges and 15 vertices?

TEST YOURSELF (VSS-3)

1. Tabulate the number of faces, edges and vertices for the following polyhedrons: (Here 'V' stands for number of vertices, 'F' stands for number of faces and 'E' stands for number of edges).

Solid	F	V	E	F + V	E + 2
Cuboid					
Triangular pyramid					
Triangular prism					
Pyramid with square base					
Prism with square base					



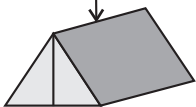


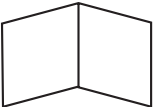
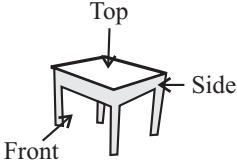


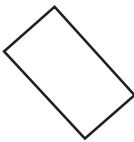
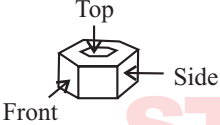
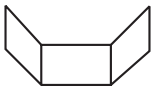
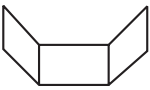

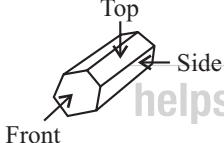



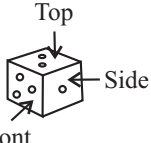



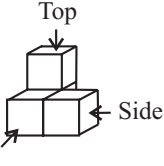
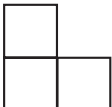
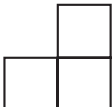
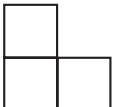


NCERT Textual Exercises and Assignments

Exercise – 10.1






1. (a) \longrightarrow (iii) \longrightarrow (iv)
 (a) \longrightarrow (i) \longrightarrow (v)
 (c) \longrightarrow (iv) \longrightarrow (ii)
 (d) \longrightarrow (iv) \longrightarrow (ii)
 (e) \longrightarrow (ii) \longrightarrow (i)
2. (a) \longrightarrow (i) \longrightarrow Front (ii) \longrightarrow Side (iii) \longrightarrow Top view
 (b) \longrightarrow (i) \longrightarrow Side (ii) \longrightarrow Front (iii) \longrightarrow Top view
 (c) \longrightarrow (i) \longrightarrow Front (ii) \longrightarrow Side (iii) \longrightarrow Top view
 (d) \longrightarrow (i) \longrightarrow Front (ii) \longrightarrow Side (iii) \longrightarrow Top view
3. (a) \longrightarrow (i) \longrightarrow Top view (ii) \longrightarrow Front view (iii) \longrightarrow Side view
 (b) \longrightarrow (i) \longrightarrow Side view (ii) \longrightarrow Front view (iii) \longrightarrow Top view
 (c) \longrightarrow (i) \longrightarrow Top view (ii) \longrightarrow Side view (iii) \longrightarrow Front view
 (d) \longrightarrow (i) \longrightarrow Side view (ii) \longrightarrow Front view (iii) \longrightarrow Top view
 (e) \longrightarrow (i) \longrightarrow Front view (ii) \longrightarrow Top view (iii) \longrightarrow Side view

4.

S. No.	Object	Front view	Side view	Top view
(a)	A Military Tent 			
(b)	A Table 			
(c)	A Nut 			
(d)	A Hexagonal Block 			
(e)	A Dice 			
(f)	A Solid 			

Test Yourself (VSS-1)

1.

	Object	Picture	Shape
(i)	An agricultural field		A triangular field adjoining a square field.
(ii)	A groove		A cone taken out of a cylinder.
(iii)	A toy		A hemisphere surmounted on a cone.
(iv)	A circular park		A circular path around a circular ground.
(v)	A cross path		Two rectangular cross paths inside a rectangular park.

Exercise – 10.3

- No. a polyhedron cannot have 3 triangles for its faces.
 - Yes, a polyhedron can have four triangles which is known as pyramid on triangular base
 - Yes, a polyhedron has its faces a square and four triangles which makes a pyramid on square base.
- It is possible, only if the number of faces are greater than or equal to 4.
- Figure (ii) unsharpened pencil and figure (iv) a box are prisms.
- A prism becomes a cylinder as the number of sides of its base becomes larger and larger.
 - A pyramid becomes a cone as the number of sides of its base becomes larger and larger
- No. it can be a cuboid also.
- Here, figure (i) contains 7 faces, 10 vertices and 15 edges.
Using Eucler's formula, we see $F + V - E = 2$
Putting $F = 7$, $V = 10$ and $E = 15$,
 $F + V - E = 2 \Rightarrow 7 + 10 - 5 = 2$
 $\Rightarrow 17 - 15 = 2 \Rightarrow 2 = 2$
 $\Rightarrow \text{L.H.S.} = \text{R.H.S.}$
 - Here, figure (ii) contains 9 faces, 9 vertices and 16 edges.
Using Eucler's formula, we see $F + V - E = 2$

$$\begin{aligned}
 F + V - E &= 2 & \Rightarrow 9 + 9 - 16 &= 2 \\
 \Rightarrow 18 - 16 &= 2 & \Rightarrow 2 &= 2 \\
 \Rightarrow \text{L.H.S.} &= \text{R.H.S.}
 \end{aligned}$$

Hence verified Euler's formula

7. In first column, $F = ?$, $V = 6$ and $E = 12$

Using Euler's formula, we see $F + V - E = 2$

$$\begin{aligned}
 F + V - E &= 2 & \Rightarrow F + 6 - 12 &= 2 \\
 \Rightarrow F - 6 &= 2 & \Rightarrow F &= 2 + 6 = 8
 \end{aligned}$$

Hence there are 8 faces

In second column, $F = 5$, $V = ?$ and $E = 9$

Using Euler's formula, we see $F + V - E = 2$

$$\begin{aligned}
 F + V - E &= 2 & \Rightarrow 5 + V - 9 &= 2 \\
 \Rightarrow V - 4 &= 2 & \Rightarrow V &= 2 + 4 = 6
 \end{aligned}$$

Hence there are 6 vertices.

In third column, $F = 20$, $V = 12$ and $E = ?$

Using Euler's formula, we see $F + V - E = 2$

$$\begin{aligned}
 F + V - E &= 2 & \Rightarrow 20 + 12 - E &= 2 \\
 \Rightarrow 32 - E &= 2 & \Rightarrow E &= 32 - 2 = 30
 \end{aligned}$$

Hence there are 30 edges.

8. If $F = 10$, $V = 15$ and $E = 20$.

Then, we know Using Euler's formula, $F + V - E = 2$

$$\begin{aligned}
 \text{L.H.S.} &= F + V - E \\
 &= 10 + 15 - 20 \\
 &= 25 - 20 \\
 &= 5
 \end{aligned}$$

$$\text{R.H.S.} = 2$$

$\text{L.H.S.} \neq \text{R.H.S.}$ Therefore, it does not follow Euler's formula.

So polyhedron cannot have 10 faces, 20 edges and 15 vertices.

Test Yourself (VSS-3)

1.

Solid	F	V	E	F + V	E + 2
Cuboid	6	8	12	14	14
Triangular pyramid	4	4	6	8	8
Triangular prism	5	6	9	11	11
Pyramid with square base	5	5	8	10	10
Prism with square base	6	8	12	14	14

