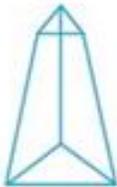


Chapter 10: Visualising Solid Shapes

1) Complete the table given below:

S. No	Solid	Shape of Solid	Number of faces F	Number of Vertices V	Number of edges E	F + V	E + 2
a.	Cuboid						
b.	Triangular Pyramid						
c.	Square Pyramid						
d.	Rectangular Pyramid						
e.	Pentagonal Pyramid						
f.	Hexagonal Pyramid						
g.	Triangular Prism						
h.	Square Prism						
i.	Cube						
j.	Pentagonal Prism						
k.	Octagonal Prism						
l.	Heptagonal Prism						

- 2) How many faces does each of the following solids, have?
- (a) Tetrahedron (b) Hexahedron
(c) Octagonal Pyramid (d) Octahedron
- 3) Draw a prism with its base as regular hexagon with one of its face facing you. Now draw the top view, front view and side view of this solid.
- 4) How many vertices does each of the following solids have?
- (a) Cone (b) Cylinder
(c) Sphere (d) Octagonal Pyramid
(e) Tetrahedron (f) Hexagonal Prism
- 5) How many edges does each of following solids have?
- (a) Cone (b) Cylinder
(c) Sphere (d) Octagonal Pyramid
(e) Hexagonal Prism (f) Kaleidoscope
- 6) Look at the shapes given below and state which of these are polyhedra using Euler's formula.



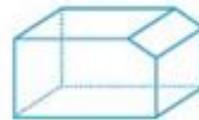
(a)



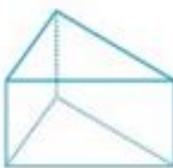
(b)



(c)



(d)



(e)



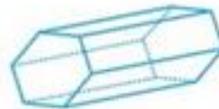
(f)



(g)



(h)



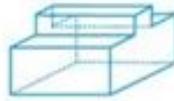
(i)



(j)



(k)



(l)



(m)

7) Count the number of cubes in the given shapes.



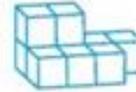
(a)



(b)



(c)



(d)



(e)



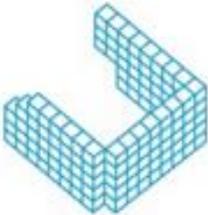
(f)



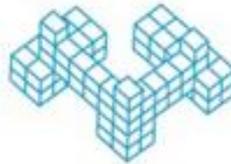
(g)



(h)



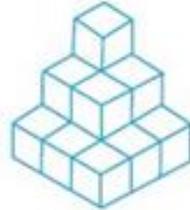
(i)



(j)

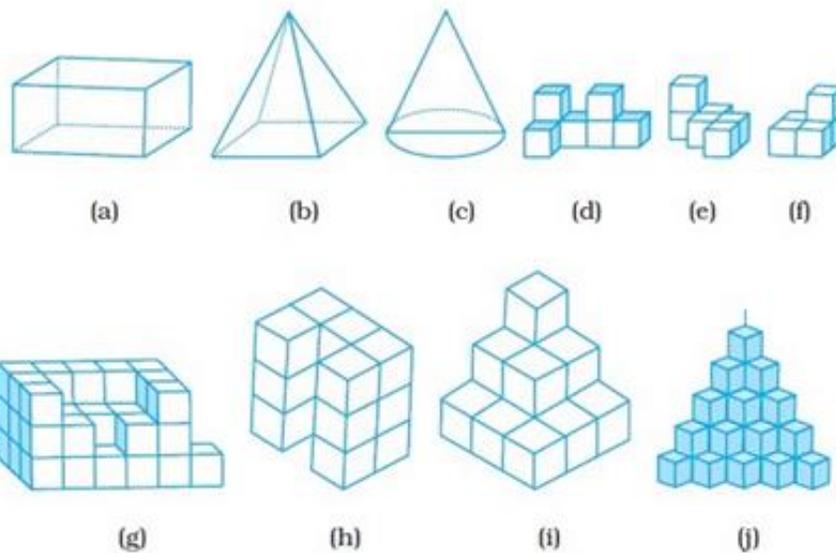


(k)



(l)

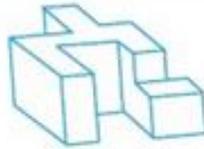
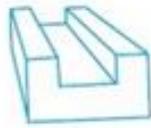
8) Draw the front, side and top view of the given shapes.



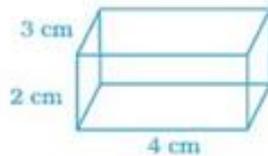
- 9) Using Euler's formula, find the value of unknown x , y , z , p , q , r , in the following table.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Faces	7	y	9	p	6	8
Vertices	10	12	z	6	q	11
Edges	x	18	16	12	12	r

- 10) Can a polyhedron have $V = F = 9$ and $E = 16$? If yes, draw its figure.
- 11) Check whether a polyhedron can have $V = 12$, $E = 6$ and $F = 8$.
- 12) A polyhedron has 60 edges and 40 vertices. Find the number of its faces.
- 13) Find the number of faces in the given shapes:



- 14) A polyhedron has 20 faces and 12 vertices. Find the edges of the polyhedron.
- 15) A solid has forty faces and sixty edges. Find the number of vertices of the solid.
- 16) Draw the net of a regular hexahedron with side 3 cm. (Hint: Regular hexahedron - cube)
- 17) Draw the net of a regular tetrahedron with side 6 cm.
- 18) Draw the net of the following cuboid:



- 19) Match the following:

Figure

Name



(a) Hexahedron



(b) Hexagonal Prism



(c) Square Pyramid



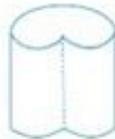
(d) Cone

- 20) Complete the table given below by putting tick mark across the respective property found in the solids mentioned.

Solids

Properties	Cone	Cylinder	Prism	Pyramid
1. The figure is a Polyhedron.				
2. The figure has diagonals.				
3. The shape has curved edges				
4. The base of figure is a polygon.				
5. The bases are congruent				
6. The base of figure is a polygon and other faces meet at a single point.				
7. The base of figure is a curved edge and other faces meet at a single point.				

- 21) Draw the net of the following shape.

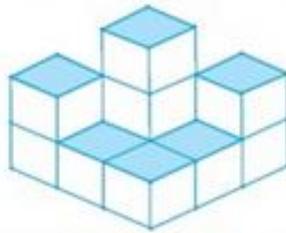


- 22) Draw the net of the following solid.

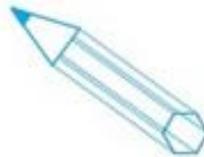


(Hint: Pentagons are not congruent.)

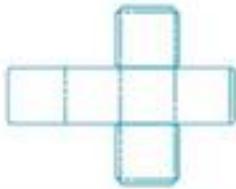
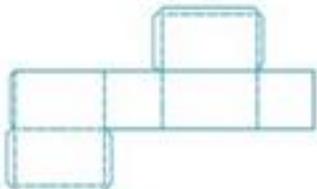
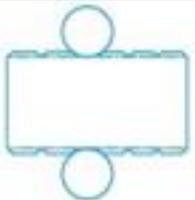
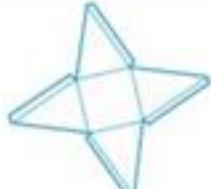
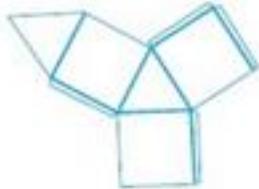
- 23) Find the number of cubes in the base layer of the following figure.



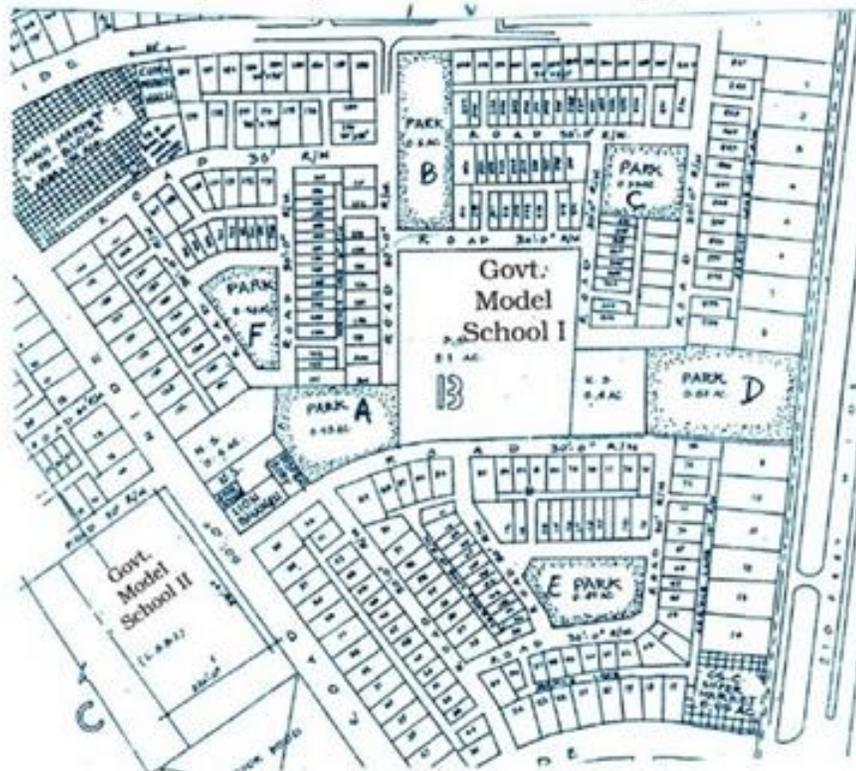
- 24) In the above figure, if only the shaded cubes are visible from the top, draw the base layer.
- 25) How many faces, edges and vertices does a pyramid have with n sided polygon as its base?
- 26) Draw a figure that represents your mathematics textbook. What is the name of this figure? Is it a prism?
- 27) In the given figures, identify the different shapes involved.



- 28) What figure is formed if only the height of a cube is increased or decreased?
- 29) Use isometric dot paper to draw each figure.
- A tetrahedron.
 - A rectangular prism with length 4 units, width 2 units and height 2 units.
- 30) Identify the nets given below and mention the name of the corresponding solid in the space provided.

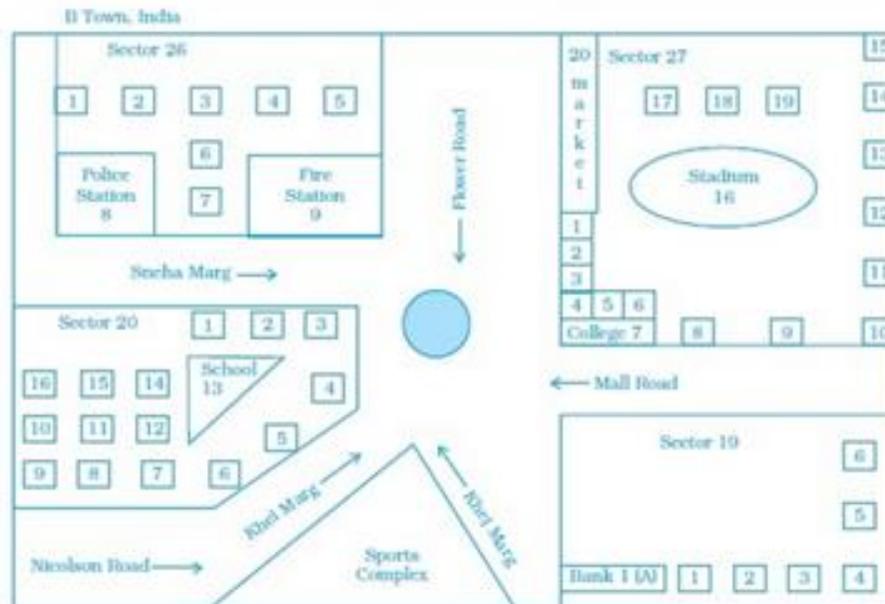
Nets	Name of Solid
<p>(a)</p> 	
<p>(b)</p> 	
<p>(c)</p> 	
<p>(d)</p> 	
<p>(e)</p> 	
<p>(f)</p> 	

- 31) Draw a map of your school playground. Mark all necessary places like 2 library, Playground, Medical Room, Classrooms, Assembly area, etc.
- 32) Refer to the given map to answer the following questions.



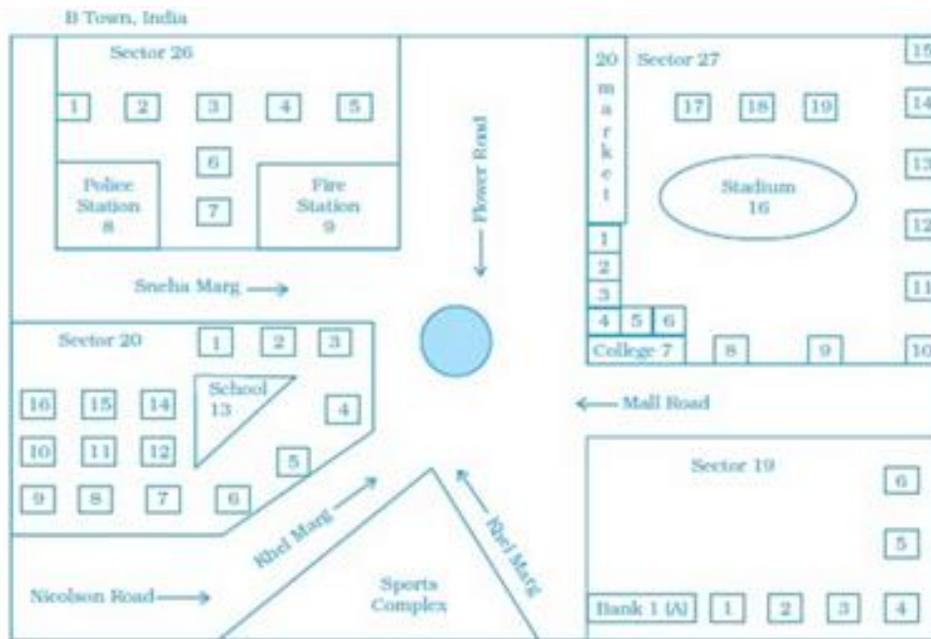
- (a) What is the built-up area of Govt. Model School I ?
- (b) Name the schools shown in the picture.
- (c) Which park is nearest to the dispensary?
- (d) To which block does the main market belong?
- (e) How many parks have been represented in the map?
- 33) Look at the map given below.
Answer the following questions.
- (a) Which two hospitals are opposite to each other?

- (b) A person residing at Niti Bagh has to go to Chirag Delhi after dropping her daughter at Asiad Tower. Mention the important landmarks he will pass along with the roads taken.
- (c) Name of which road is similar to the name of some month.



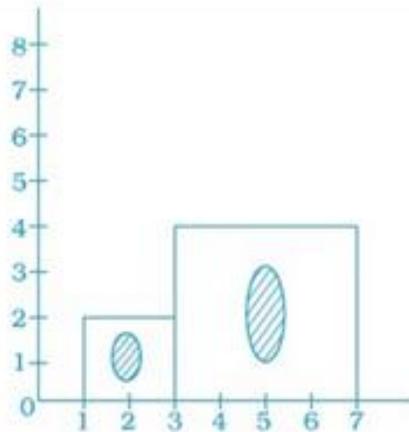
34) Look at the map given below.

Houses



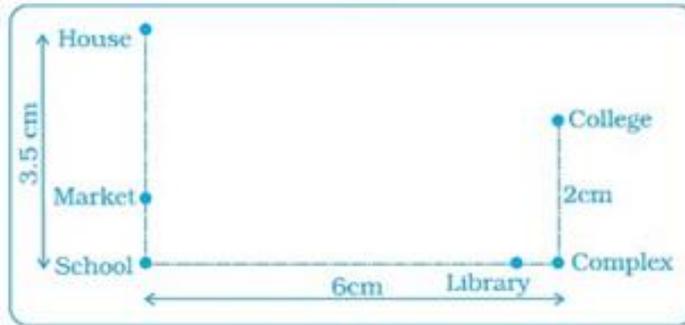
Now answer the following questions.

- Name the roads that meet at round about.
 - What is the address of the stadium?
 - On which road is the Police Station situated?
 - If Ritika stays adjacent to bank and you have to send her a card, what address will you write?
 - Which sector has maximum number of houses?
 - In which sector is Fire Station located?
 - In the map, how many sectors have been shown?
- 35) A photographer uses a computer program to enlarge a photograph. What is the scale according to which the width has enlarged?



- 36) The side of a square board is 50 cm. A student has to draw its image in her notebook. If the drawing of the square board in the notebook has perimeter of 40 cm, then by which scale the figure has been drawn?
- 37) The distance between school and house of a girl is given by 5 cm in a picture, using the scale 1 cm : 5 km. Find the actual distance between the two places?
- 38) Use a ruler to measure the distance in cm between the places joined by dotted lines. If the map has been drawn using the scale 1 cm : 10 km, find the actual distances between
- (1) School and Library
 - (2) College and Complex
 - (3) House and School

Town Y



- 39) The actual length of a painting was 2 m. What is its length in the photograph if the scale used is 1 mm : 20 cm.



- 40) Find the scale.
- Actual size 12 m
Drawing size 3 cm
 - Actual size 45 feet
Drawing size 5 inches
- 41) In a town, an ice cream parlour has displayed an ice cream sculpture of height 360 cm. The parlour claims that these ice creams and the sculpture are in the scale 1:30. What is the height of the ice creams served?