NCERT solutions for class 8 maths chapter 10 visualizing solid shapes

Question:1 Match the following: (First one is done for you)

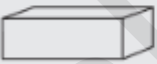| Shape	Type of Shape	Name of the shape
□	3-dimensional	Sphere
△ (cone)	2-Dimensional	Cylinder
(cylinder)	3-dimensional	Square
△ (triangle)	2-dimensional	Circle
(cube)	3-dimensional	Cuboid
○ (circle)	3-dimensional	Cube
(cuboid)	2-dimensional	Cone
(sphere)	3-dimensional	Triangle

Answer:

Matched items are:

Shape	Type of Shape	Name of the shape
□	3-dimensional	Sphere
cone	2-dimensional	Cylinder
cylinder	3-dimensional	Square
△	2-dimensional	Circle
cube	3-dimensional	Cuboid
○	3-dimensional	Cube
cuboid	2-dimensional	Cone
hemisphere	3-dimensional	Triangle

Question:2 Match the following pictures (objects) with their shapes:

Picture (object)		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.

Answer:

Matched objects are:

Picture (object)		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.

NCERT solutions for class 8 chapter 10 visualizing solid shapes-

Exercise: 10.1

Question: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

(b)

A weight

(c)

A flask

(d)

Cup and Saucer

(e)

Container

(i)

(ii)

(iii)

(iv)

(v)

(i)

(ii)

(iii)

(iv)

(v)

Answer:

Matched objects are:

(1) →iii)→iv)

(2) →i) →v)

(3) →iv)→ii)

(4) →v) →iii)

(5) →ii) →i)

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

Question:2(a) 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
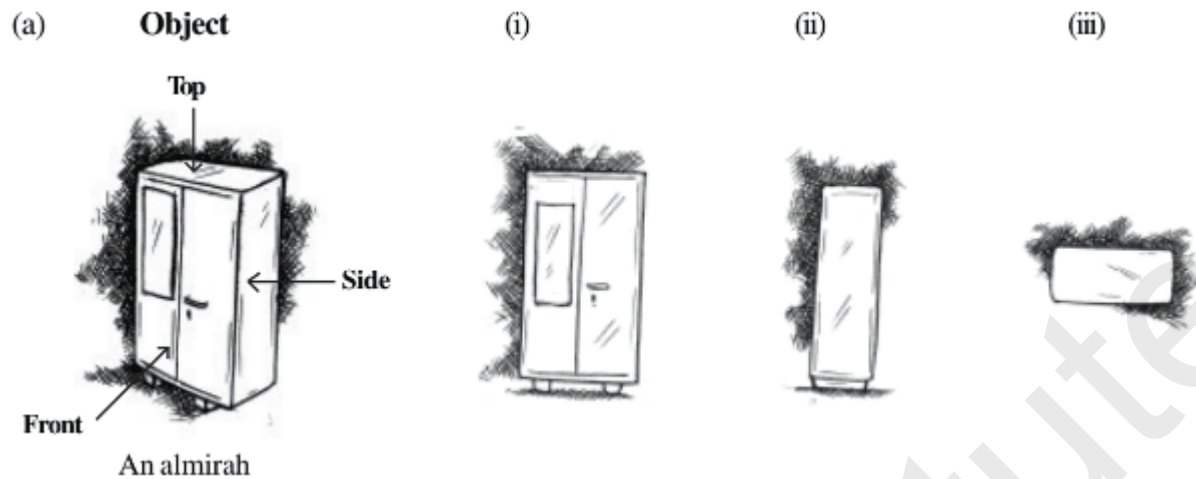
Answer:

(a) Different views have given: **(i) Front, (ii) Side, (iii) Top.**

An almirah
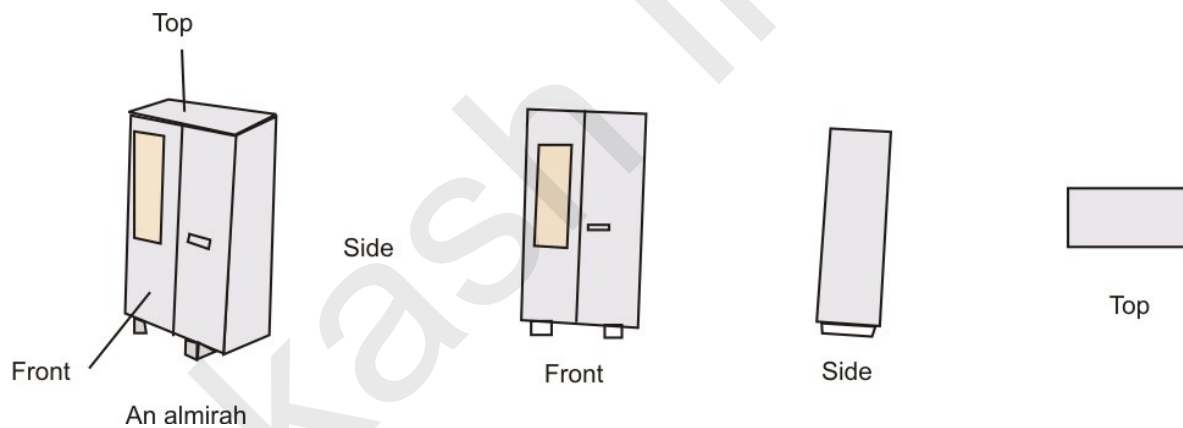
Question:2(b) For each of the given solid, the three views are given. Identify for each solid the corresponding top,

front and side views.

(b)

A Match box
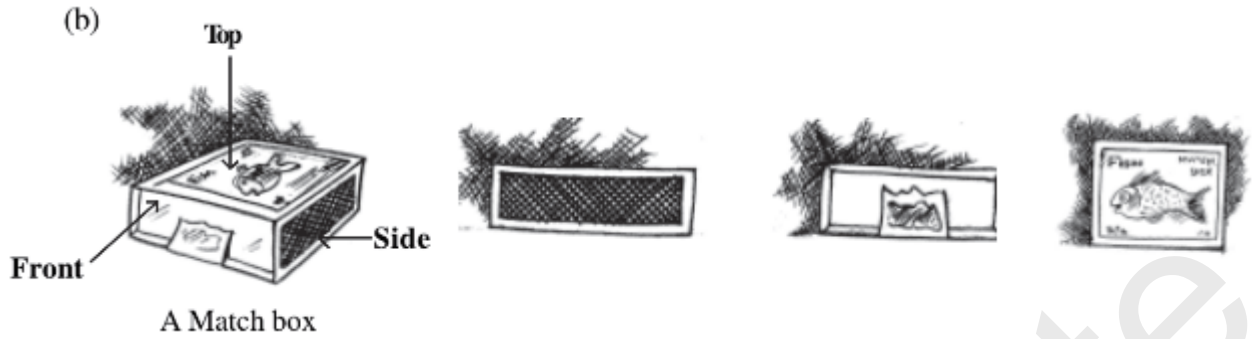
Answer:

(b) (i) Side view, (ii) Front view, (iii) Top view.

(B)

A mathch box
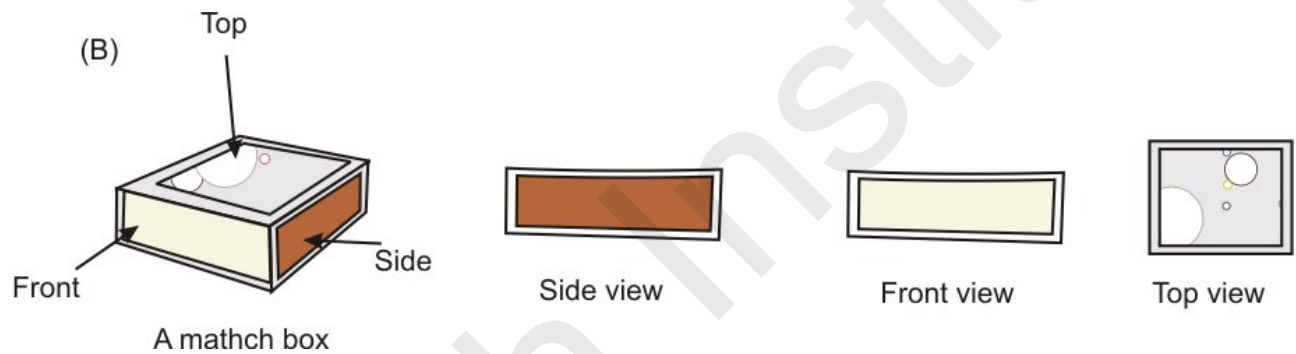
Question:2(c) For each of the given solid, the three views are given. Identify for each solid the corresponding top, front and side views.

(c)

A Television
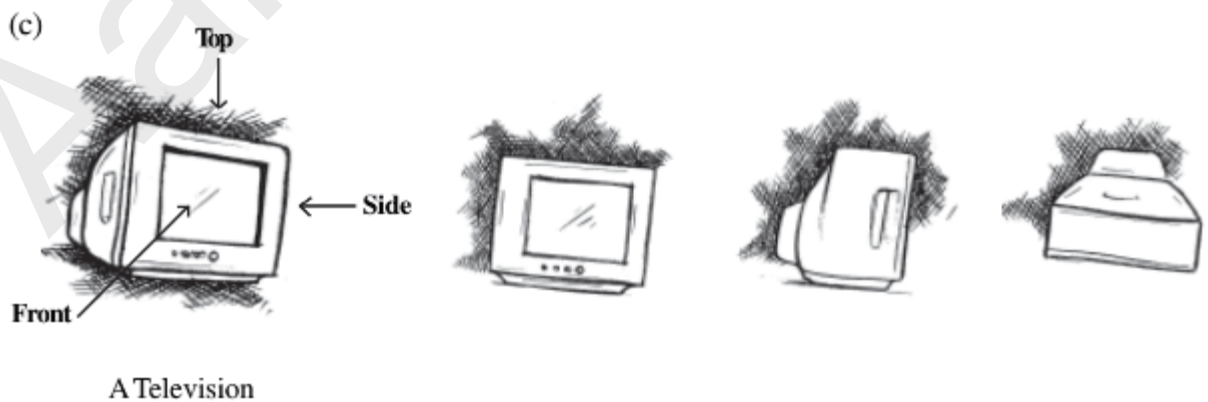
Answer:

(c) (i) Front view, (ii) Side view, and (iii) Top view.

Top

Side

Front A television

Front view Side view Top view
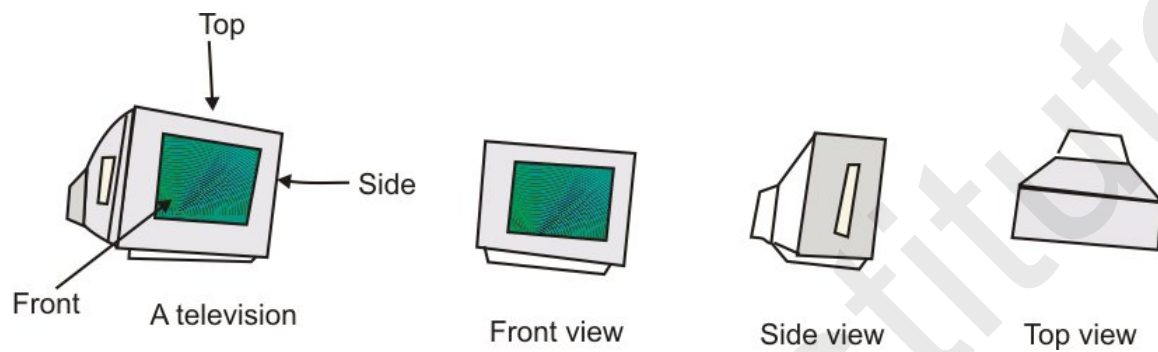
Question:2(d) For each of the given solid, the three views are given. Identify for each solid the corresponding top,

front and side views.

(d) Top

Front Side

A car

Answer:

(d) (i) Front view, (ii) Side view, and (iii) Top view.

A car

Front view   Side view   Top view
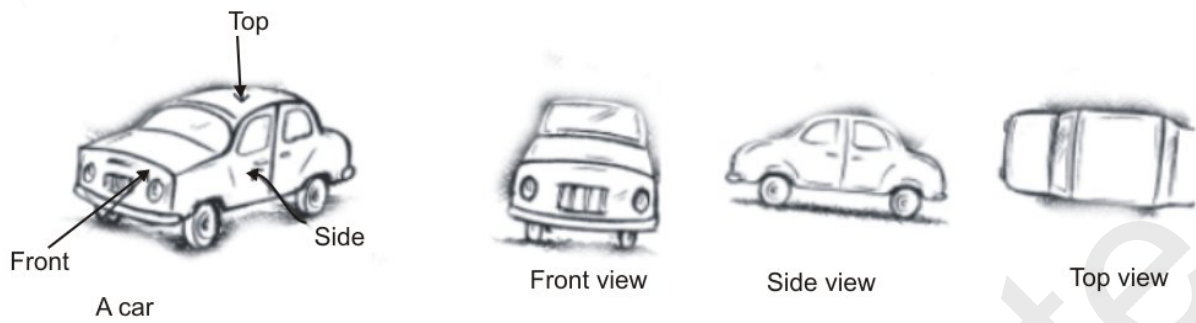
Question:3(a) For each given solid, identify the top view, front view and side view.

(i)   (ii)   (iii)
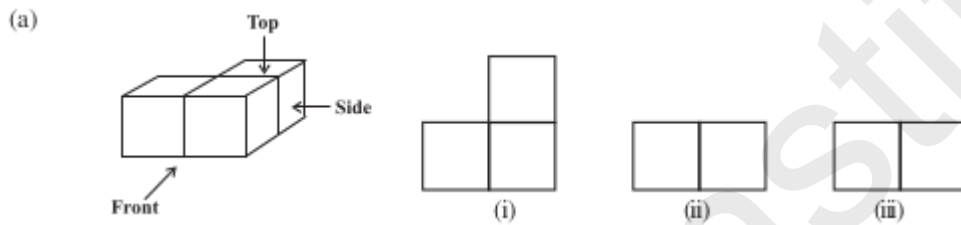
Answer:

(a) (i) Top view, (ii) Front/ Side view, and (iii) Side/ Front view.

(i)   (ii)   (iii)

Top view   *Front view/*   *Side view/*
              Side view   *Front view*
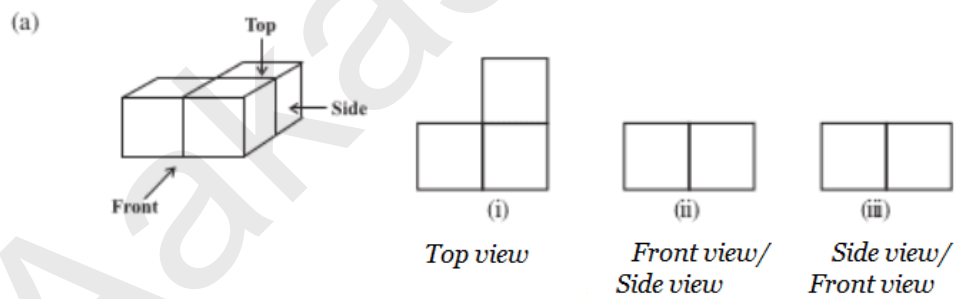
Question:3(b) For each given solid, identify the top view, front view and side view.

(b)

Answer:

(b) (i) Side view, (ii) Front view, and (iii) Top view.
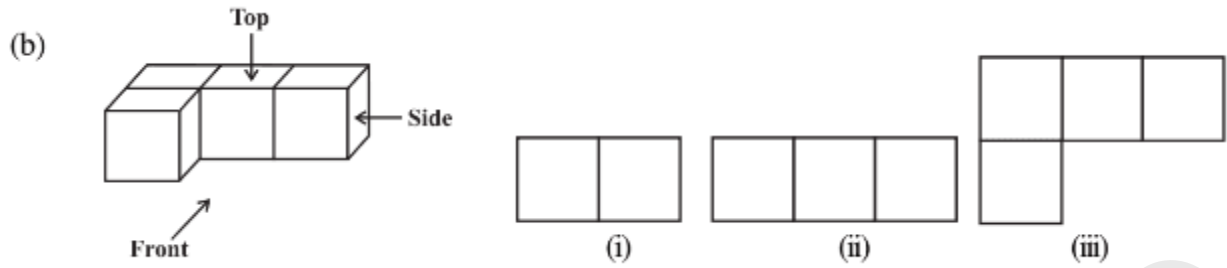
Side view   Front view   Top view
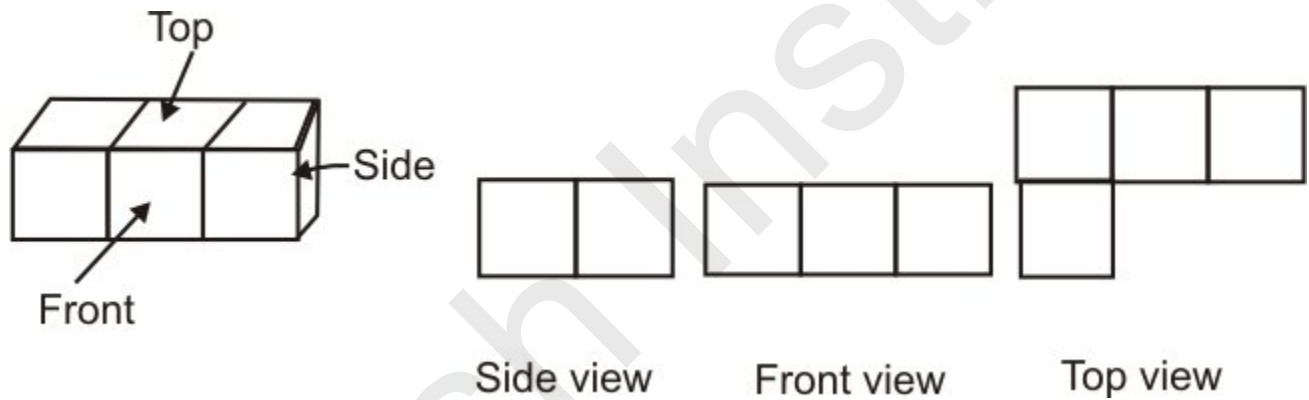
Question:3(c) For each given solid, identify the top view, front view and side view.

(c)
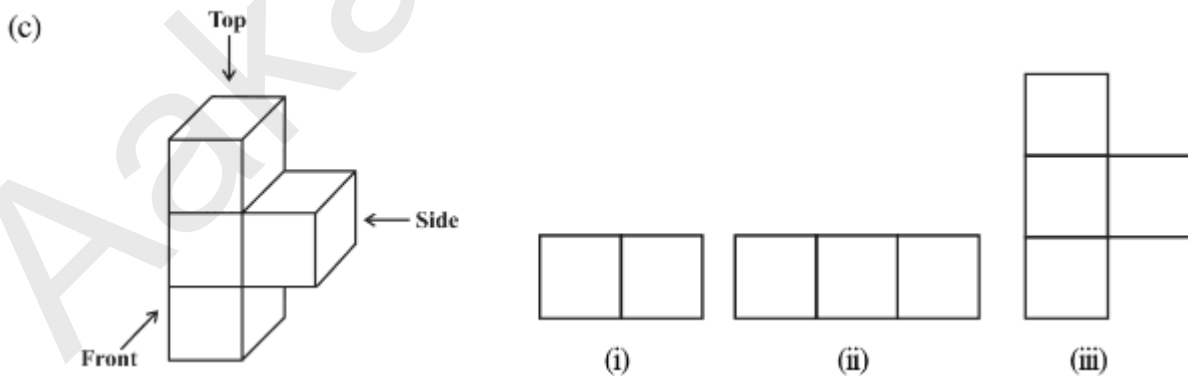
Answer:

(c) (i) Top view, (ii) Side view, and (iii) Front view.

Top

Side

Front

(i)
Top view

(ii)
Side view

(iii)
Front view
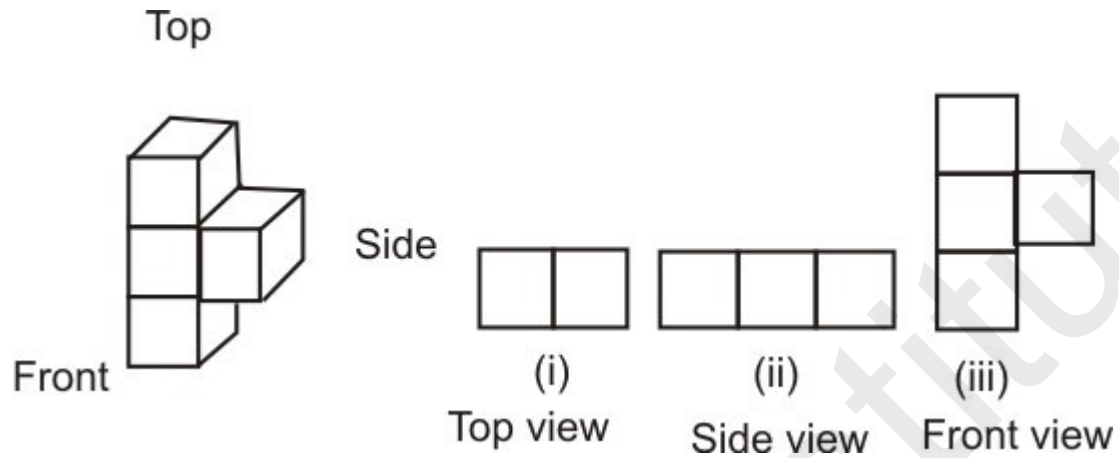
Question:3(d) For each given solid, identify the top view, front view and side view.

(d)

Top

Side

Front

(i)

(ii)

(iii)
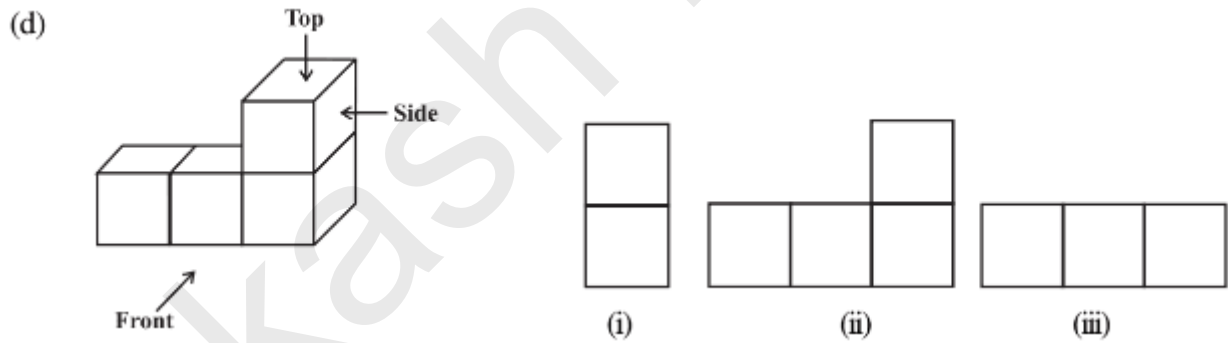
Answer:

(d) (i) Side view, (ii) Front view, and (iii) Top view.

Front   (i)   (ii)   (iii)

Side view   Front view   Top view
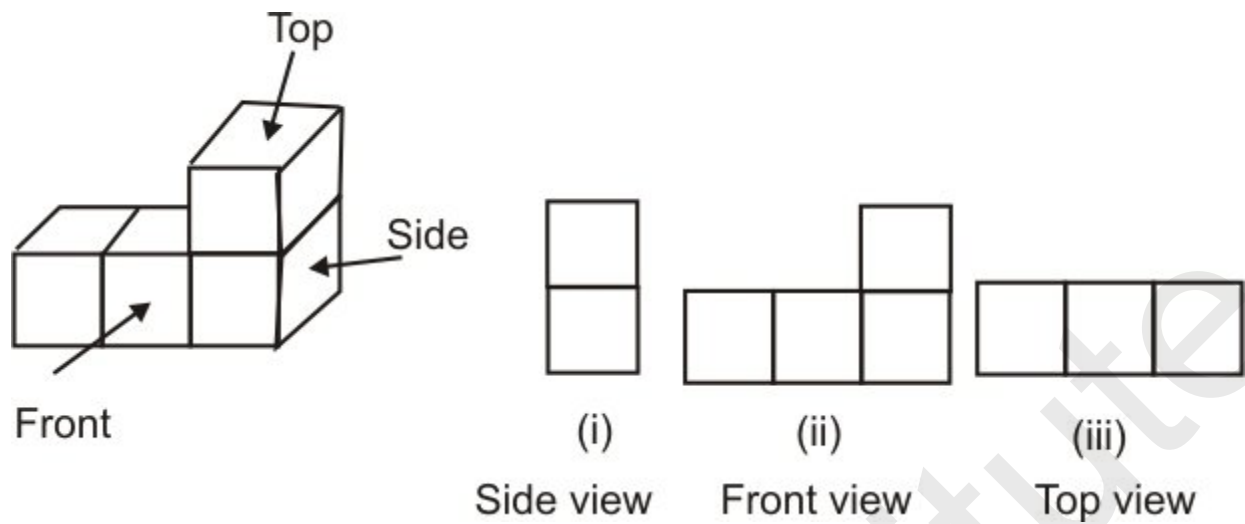
Question:3(e) For each given solid, identify the top view, front view and side view.

(e)
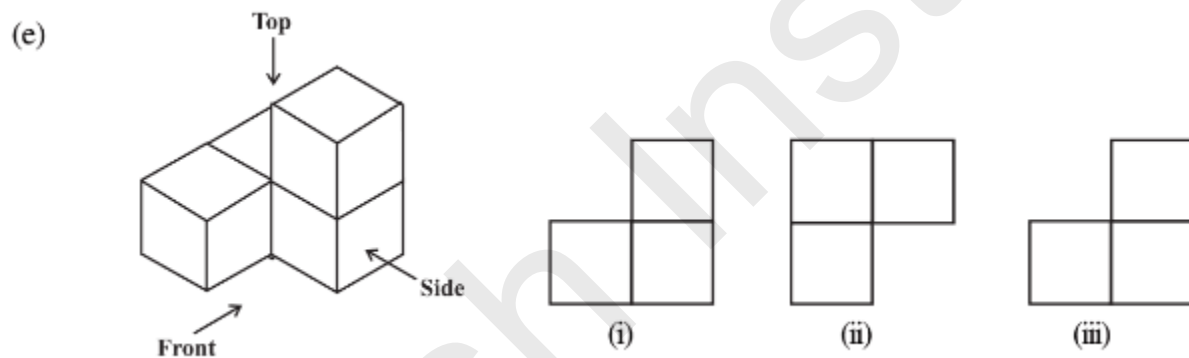
Answer:

(e) (i) Front view, (ii) Top view, and (iii) Side view.

Top
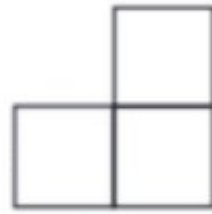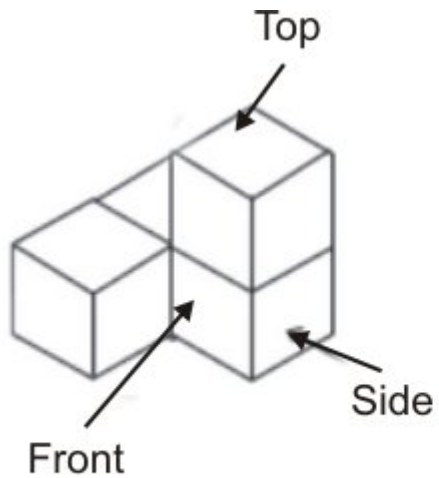
Side
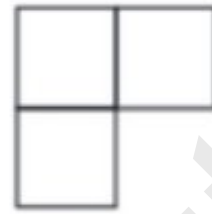
Front

(i) Front view
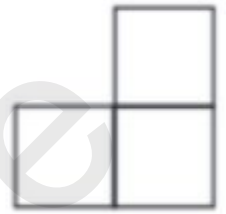
(ii) Top view

(iii) Side view

Question:4(a) Draw the front view, side view and top view of the given objects.

A military tent

Top
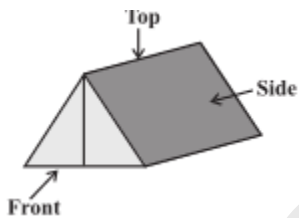
Side

Front

Answer:

The front view, top view, and side view of a tent are shown below:

Front
view
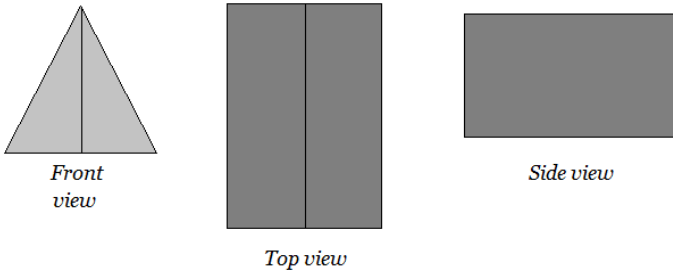
Top view

Side view

Question:4(b) Draw the front view, side view and top view of the given objects.

A table

Top
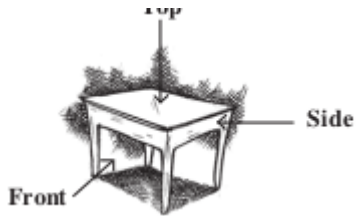
Side

Front

Answer:

Front view, Top view, and Side view of the table shown below:

Top view

Front view
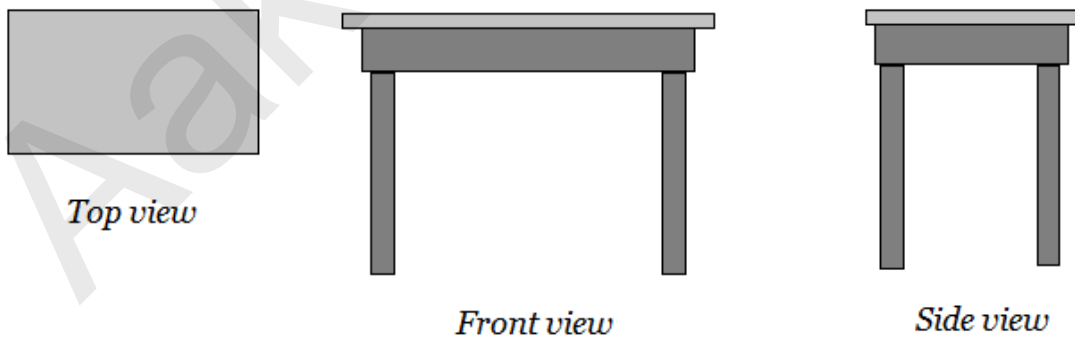
Side view

Question:4(c) Draw the front view, side view and top view of the given objects.

A nut
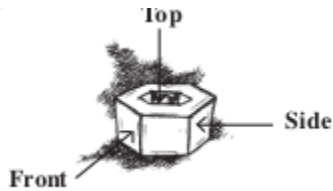
Answer:

The front, top, and side views of the nut are:

Front view
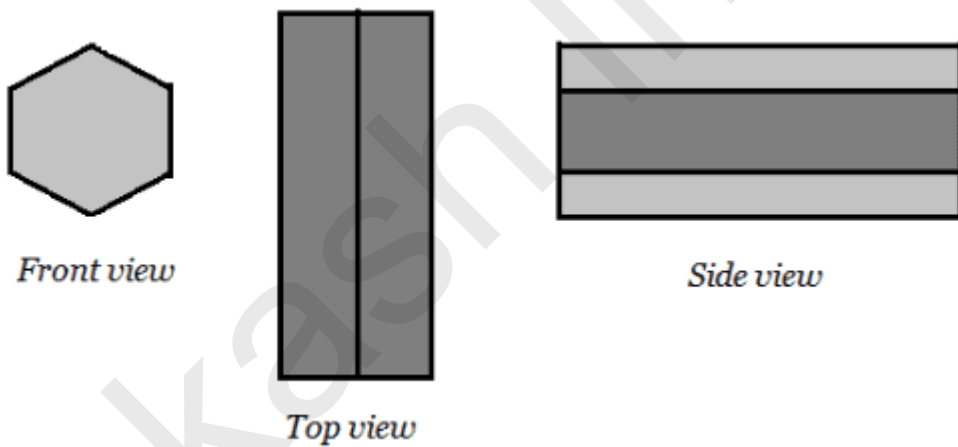
Top view

Side view

Question:4(d) Draw the front view, side view and top view of the given objects.

A hexagonal block

(d) A hexagonal block
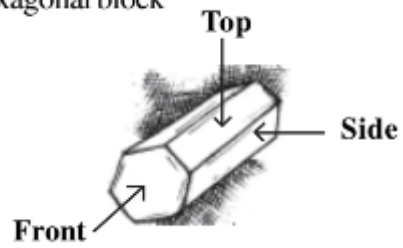
Answer:

The front view, side view and top view of the hexagonal block are shown below:

Front view
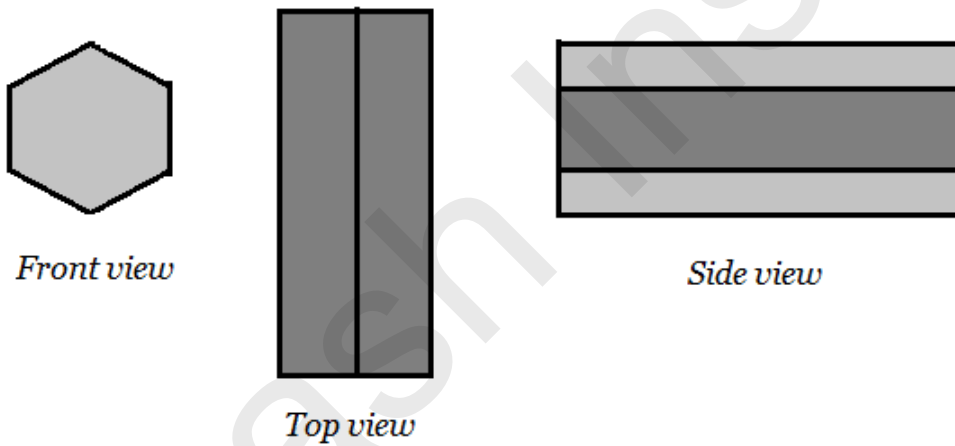
Top view

Side view

Question:4(e) Draw the front view, side view and top view of the given objects.

(e) A dice
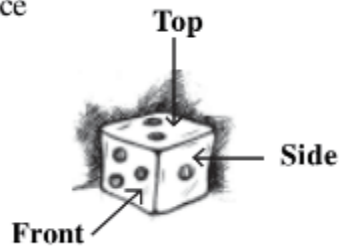
Answer:

The front view, side view and top view of the dice as shown below:
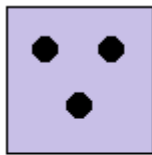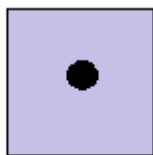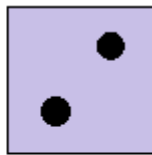
| Front view | Side view | Top view |

Question:4(f) Draw the front view, side view and top view of the given objects.

A solid
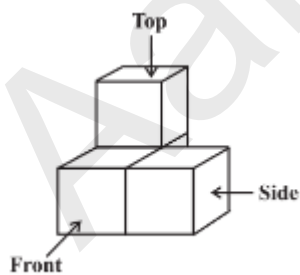
Answer:

The front view, side view and top view of the given solid.

Top view   Front view   Side view
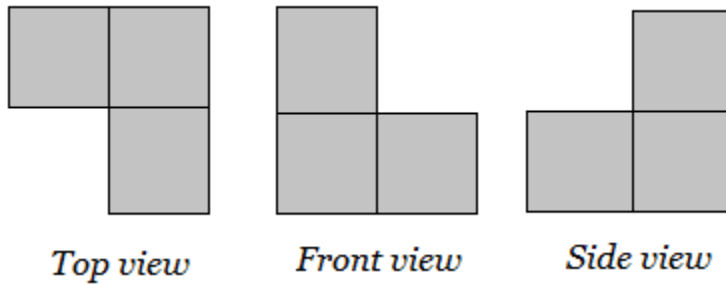
NCERT solutions for class 8 maths chapter 10 visualizing solid shapes-Exercise: 10.2

Question:1(a) 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.

Answer:

(a) Coloured map shown:
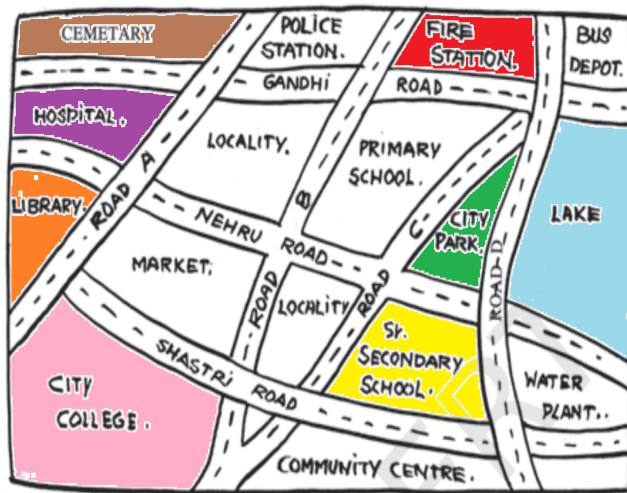
Question:1(b) Look at the given map of a city.

Answer the following.

Mark a green 'X' at the intersection of Road 'C' and Nehru Road, Green 'Y' at the intersection of Gandhi Road and Road A.

Answer:

(b) marked points of intersections "X" and "Y":
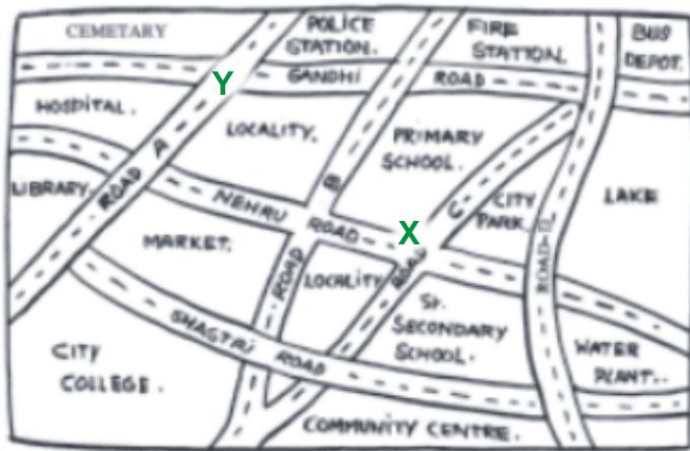
Question:1(c) Look at the given map of a city.

Answer the following.

In red, draw a short street route from Library to the bus depot.

Answer:

Route from Library to bus depot is shown:
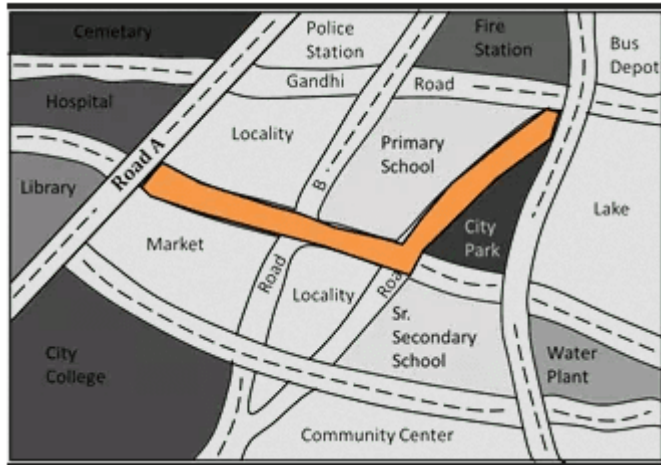
Question:1(d) Look at the given map of a city.

Answer the following.

Which is further east, the city park or the market?

Answer:

(d) The **city park** is further east.

Question:1(e) Look at the given map of a city.

Answer the following.

Which is further south, the primary school or the Sr. Secondary School?

Answer:

(e) Sr. Secondary School is further south.

Question:2 Draw a map of your class room using proper scale and symbols for different objects.

Answer:

Do it yourself.

Question:3 Draw a map of your school compound using proper scale and symbols for various features like play ground main building, garden etc.

Answer:

Do it with your own imagination.

Question:4 Draw a map giving instructions to your friend so that she reaches your house without any difficulty.

Answer:

Do it with your own imagination.

NCERT solutions for class 8 maths chapter 10 visualizing solid shapes topic 10.4 faces, edges and vertices

Question: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).What do you infer from the last two columns? In each case, do you find, i.e., $F + V$? This relationship is called Euler's formula. In fact this formula is true for any polyhedron.

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

Answer:

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

NCERT solutions for class 8 maths chapter 10 visualizing solid shapes-Exercise: 10.3

Question:1(i) Can a polyhedron have for its faces

Answer:

(i) No, a **polyhedron** cannot **have 3 triangles** for **its faces** .

Question:1(ii) Can a polyhedron have for its faces

4 triangles?

Answer:

(ii) Yes, a **polyhedron having 4 triangles is** pyramid on **triangular** base.

Question:1(iii) Can a polyhedron have for its faces

a square and four triangles?

Answer:

(iii) Yes, a **polyhedron** can have **faces** of a square and four **triangles** which makes a pyramid on square base.

Question:2 Is it possible to have a polyhedron with any given number of faces? (Hint: Think of a pyramid).

Answer:

Yes , it is possible if the number of faces is four or more than four.

Question:3(i) Which are prisms among the following?

(i)

A nail

Answer:

(i) a nail is **not** a prism.

Question:3(ii) Which are prisms among the following?

(ii)

Unsharpened pencil

Answer:

(ii) The unsharpened pencil is a prism.

Question:3(iii) Which are prisms among the following?

(iii)
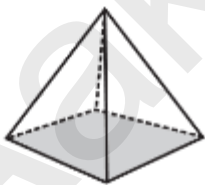
A table weight

Answer:

(iii) Table weight is **not** a prism.

Question:3(iv) Which are prisms among the following?

(iv)
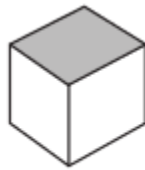
A box

Answer:

(iv) Given box is a prism.

Question:4(i) How are prisms and cylinders alike?

Answer:

(i) A prism is a polyhedron whose base and top are congruent polygons and whose other faces, i.e., lateral faces are parallelograms in shape. Also, the cylinder has base on top and bottom and faces are parallel.

Question:5 Is a square prism same as a cube? Explain.

Answer:

No , not always, because it can be a cuboid also when extended.

Question:6(i) Verify Euler's formula for these solids.

(i)

Answer:

(i) Euler formula **F+V = E + 2.**

So, Number of faces (F) = 7, Number of vertices (V) = 10 and number of edges (E) = 15.

Hence putting in the formula; we get,

7 + 10 = 15 + 2

17 = 17 hence, **it satisfies the Euler formula.**

Question:6(ii) Verify Euler's formula for these solids.

(ii)

Answer:

(ii) Euler formula **F+V = E + 2.**

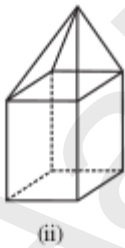So, Number of faces (F) = 9, Number of vertices (V) = 9 and number of edges (E) = 16.

Hence putting in the formula; we get,

9 + 9 = 16 + 2

18 = 18 hence, **it satisfies the Euler formula.**

Question:7 Using Euler's formula find the unknown.

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

Answer:

We know the Euler Formula:

F + V = E + 2 :

hence we can easily find the unknown let say **'F, V, and E'**

So, For Ist case:

F + 6 = 12 + 2 or **F = 8, hence the number of faces in Ist case is 8.**

For IInd Case;

5 + V = 9 + 2 or **V = 6, hence the number of vertices in IInd case is 6.**

For IIIrd case;

20 + 12 = E + 2 or E = 30, hence the number of Edges in the IIIrd case is 30.

Faces	8	5	20
Vertices	6	6	12
Edges	12	9	30

Question:8 Can a polyhedron have 10 faces, 20 edges and 15 vertices?

Answer:

Checking using Euler's Formula:

F + V = E +2;

Given that F = 10, V = 15 and E = 20 so,

Putting in equation: 10 + 15 = 35 and 20 +2 = 22

Hence, given polyhedron having 10 faces, 20 edges and 15 vertices is not possible.