

CBSE Class-11 Mathematics

NCERT Solutions

Chapter - 12 Introduction to Three Dimensional Geometry

Exercise 12.1

1. A point is on the x – axis. What are its y – coordinates and z – coordinates?

Ans. We know that coordinates of any point on the x – axis will be $(x, 0, 0)$. Therefore, y – coordinate and z – coordinate of the point are zero.

2. A point is on XZ-plane. What can you say about its y – coordinate?

Ans. We know that coordinates of any point in XZ-plane will be $(x, 0, z)$. Therefore y – coordinate of the point is zero.

3. Name the octants in which the following points lie:

$(1, 2, 3), (4, -2, 3), (4, -2, -5), (4, 2, -5), (-4, 2, -5), (-4, 2, 5), (-3, -1, 6), (2, -4, -7)$

Ans. Point $(1, 2, 3)$ lies in I octant

Point $(4, -2, 3)$ lies in IV octant

Point $(4, -2, -5)$ lies in VIII octant

Point $(4, 2, -5)$ lies in V octant

Point $(-4, 2, -5)$ lies in VI octant

Point $(-4, 2, 5)$ lies in II octant

Point $(-3, -1, 6)$ lies in III octant,

Point $(2, -4, -7)$ lies in VII octant

4. Fill in the blanks:

- (i) The x – axis and y – axis taken together determine a plane known as _____.
- (ii) The coordinates of points in the XY-plane are of the form _____.
- (iii) Coordinates planes divide the space into _____ octants.

Ans. (i) XY-plane

(ii) $(x, y, 0)$

(iii) Eight