

NCERT Solutions for Class 11 Maths Chapter 12

Introduction to Three Dimensional Geometry Class 11

Chapter 12 Introduction to Three Dimensional Geometry Exercise 12.1, 12.2, 12.3, miscellaneous Solutions

Exercise 12.1 : Solutions of Questions on Page Number : 271

Q1 :

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

Answer :

If a point is on the x-axis, then its y-coordinates and z-coordinates are zero.

Q2 :

A point is in the XZ-plane. What can you say about its y-coordinate?

Answer :

If a point is in the XZ plane, then its y-coordinate is zero.

Q3 :

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)

Answer :

The x-coordinate, y-coordinate, and z-coordinate of point (1, 2, 3) are all positive. Therefore, this point lies in octant I.

The x-coordinate, y-coordinate, and z-coordinate of point (4, -2, 3) are positive, negative, and positive respectively. Therefore, this point lies in octant IV.

The x-coordinate, y-coordinate, and z-coordinate of point (4, -2, -5) are positive, negative, and negative respectively. Therefore, this point lies in octant VIII.

The x-coordinate, y-coordinate, and z-coordinate of point (4, 2, -5) are positive, positive, and negative respectively. Therefore, this point lies in octant V.

The x-coordinate, y-coordinate, and z-coordinate of point (-4, 2, -5) are negative, positive, and negative respectively. Therefore, this point lies in octant VI.

The x-coordinate, y-coordinate, and z-coordinate of point (-4, 2, 5) are negative, positive, and positive respectively. Therefore, this point lies in octant II.

The x-coordinate, y-coordinate, and z-coordinate of point $(-3, -1, 6)$ are negative, negative, and positive respectively. Therefore, this point lies in octant **III**.

The x-coordinate, y-coordinate, and z-coordinate of point $(2, -4, -7)$ are positive, negative, and negative respectively. Therefore, this point lies in octant **VIII**.

Q4 :

Fill in the blanks:

Answer :

- (i) The x-axis and y-axis taken together determine a plane known as XY – plane.
- (ii) The coordinates of points in the XY-plane are of the form $(x, y, 0)$.
- (iii) Coordinate planes divide the space into eight octants.

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