

Class XI : Maths
Chapter 11 : Introduction to Three Dimensional Geometry
Questions and Solutions | Exercise 11.1 - NCERT Books

Question 1:

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.

Question 2:

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.

Question 3:

Name the octants in which the following points lie:

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

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**.

Question 4:

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.