



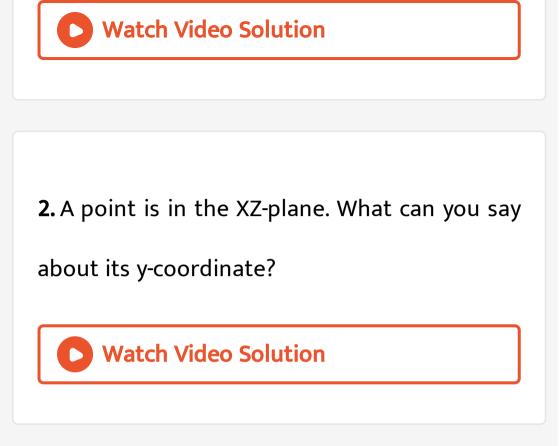
MATHS

BOOKS - PSEB

INTRODUCTION TO THREE DIMENSIONAL GEOMETRY



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



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), (-3,-1, 6) (2,-4, -7).

4. Fill in the blanks: The x-axis and y-axis taken

together determine a plane known as_____.



5. Fill in the blanks: The coordinates of points

in the XY-plane are of the form_____

6. Fill in the blanks: Coordinate planes divide

the space into_____octants.

Watch Video Solution

7. Find the distance between the following pair

of points: (2, 3, 5) and (4, 3, 1)

8. Find the distance between the following pair of points: (-3, 7, 2) and (2, 4, -1)

Watch Video Solution

9. Find the distance between the following pair of points: (-1,3,-4) and (1,-3, 4)

10. Find the distance between the following

pair of points: (2, -1, 3) and (-2, 1, 3).

Watch Video Solution

11. Show that the points (-2, 3, 5), (1, 2, 3) and (7,

0, -1) are collinear.

12. Verify the following: (0, 7, -10), (1, 6, -6) and (4, 9,-6) are the vertices of an isosceles triangle.



13. Verify the following: (0, 7, 10), (-1,6, 6) and (-4, 9, 6) are the vertices of a right angled triangle.



14. Verify the following: (-1, 2, 1), (1, -2, 5), (4, -7,8) and (2, -3, 4) are the vertices of a parallelogram.

Watch Video Solution

15. Find the equation of the set of points which are equidistant from the points (1,2,3) and (3, 2, -1).

16. Find the equation of the set of points P, the sum of whose distances from A (4, 0, 0) and B (- 4, 0, 0) is equal to 10.

Watch Video Solution

17. Find the coordinates of the point which divides the line segment joining the points (-2, 3, 5) and (1,-4, 6) in the ratio (i) 2 : 3 internally, (ii) 2 : 3 externally.

18. Given that P (3, 2,-4), Q (5, 4,-6) and R (9, 8, -10) are collinear. Find the ratio in which Q divides PR.



19. Find the ratio in which theYZ-plane divides

the line segment formed by joining the points

(-2, 4, 7) and (3,-5, 8).



20. Using section formula, show that the points A (2, -3, 4), B (-1, 2, 1) and C $(0, \frac{1}{3}, 2)$ are collinear.

Watch Video Solution

21. Find the coordinates of the points which trisect the line segment joining the points P (4, 2,-6) and Q (10,-16, 6).

22. Three vertices of a parallelogram ABCD are

A(3, -1, 2), B (1, 2, -4) and C (-1, 1, 2). Find the

coordinates of the fourth vertex.



23. If the origin is the centroid of the triangle

PQR with vertices P (2a, 2, 6), Q (- 4, 3b,-10) and

R(8, 14, 2c), then find the values of a, b and c.



24. Find the coordinates of a point on y-axis which are at a distance of $5\sqrt{2}$ from the point P (3, -2, 5).



25. A point R with x-coordinate 4 lies on the line segment joining the points P(2, -3, 4) and Q (8, 0, 10). Find the coordinates of the point R. [Hint Suppose R divides PQ in the ratio k :1. The coordinates of the point R are given by $\left(\frac{8k+2}{k+1}, \frac{-3}{k+1}, \frac{10k+4}{k+1}\right)$.



26. If A and B be the points (3, 4, 5) and (-1,3, -7), respectively, find the equation of the set of points P such that $PA^2 + PB^2 = k^2$, where k is a constant.