MATHS

BOOKS - JBD PUBLICATION

INTRODUCTION TO THREE DIMENSIONAL GEOMETRY

Example

1. Show that the points (-2,3,5), (1,2,3) and (7,0,-1) are collinear.

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2. Name the octants in which the following point lie:

A(2,3,4),

B(5,-3,3),C(2,-1,-6),D(2,2,-3),E(-1,3,-6),F(-1,3,3),G(-3,-2,5) and H(-1,-2,5).

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3. Find the distance between the following pairs of points:

(6,-1,5) and (-2,1,3)

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4. Find the distance between the following pairs of points

(-1, 3, -4), (1, -3, 4)

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5. Find the value of x, so that the point (6,5,-3) is at a distance of 13 units from the point (x,-7,0).

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6. Find the coordinates of a point on the z-axis which is equidistant from point A(3,2,1) and B(5,2,5).

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7. Find the points on x-axis which are at a distance of $\sqrt{29}$ units from point A(1,2,3).

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

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9. Show that if $x^2 + y^2 = 1$, then the point $\left(x, y, \sqrt{1 - x^2 - y^2}\right)$ is at a distance of 1 unit from the origin.

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10. Find the coordinates of the centroid of a triangle the mid points of whose sides are (1,2,-3), (3,0,1) and (-1,1,-4)

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11. Find the ratio in which the line joining the points (4,8,10) and (6,10,-8) is divided by YZ-plane.

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12. 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.

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13. Using section formula, prove that the three points (-4,6,10), (2,4,6) and (14,0,-20) are collinear.

Also find the ratio in which point B divides the join of A and C.

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

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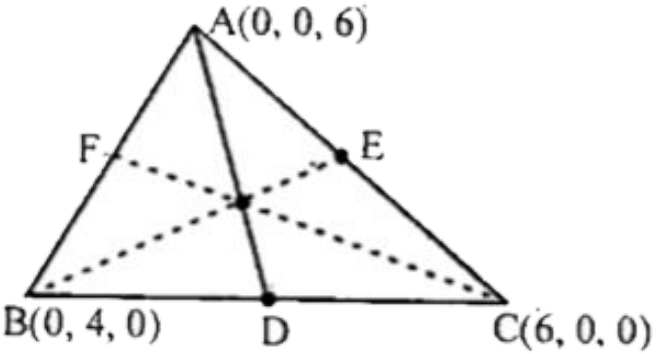
15. A point R with x-co-ordinate 4 lies on the line segment joining the points P(2,-3,4) and Q(8,0,10). Find the co-ordinate of the point R.

16. Find the lenghts of the medians of the triangle with vertices A(0,0,6), B(0,4,0) and

C(6,0,0)



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17. The centroid of a triangle ABC is at the point (1,1,1). If the coordinates of A and B are (3,-5,7) and (-1,7,-6) respectively, find the coordinats of the point C.

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18. If the origin is the centroid of triangle ABC, with vertices A(a,1,3), B(-2,b,-5) and C(4,7,c). Find the values of a,b and c.

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