



MATHS

BOOKS - S CHAND MATHS (ENGLISH)

POINTS AND THEIR COORDINATES



1. Locate the points

(i) (2, 3, 4)

(ii)(-2, -2, .3)(*iii*)(2, -2, -3) on coordinate axis Watch Video Solution

2. Prove by using the distance formula that the points A(1, 2, 3), B(-1, -1, -1) and C(3, 5, 7) are collinear.

3. Show that the points A(0, 1, 2), B(2, -1, 3) and C(1, -3, 1) are

vertices of an isosceles right-angled triangle.



4. Find the coordinates of the point equidistant from the four points A(0,0,0), B (a,0,0), C(0,b,0) and D(0,0,c).

5. If A and B be the points (3, 4, 5) and (-1, 3, -7) respectively, find the locus of P such that $PA^2 + PB^2 = k^2$.

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6. What loci do the equation represent in space?

z = 0

7. What loci do the equation rpresent in space?

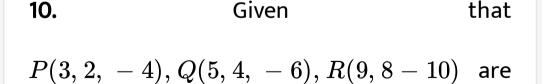
y=0, z=0

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8. Find the coordinates of a point which divides internally the points (1, 3, 7), (6, 3, 2) in the ratio 2:3.

9. Find the ratio in which the xy-plane divides the join of (-3, 4, -8) and (5, -6, 4). Also obtain the point of intersection of this line with the plane.





collinear, find the ratio in which Q divides PR.

11. A(3, 2, 0), B(5, 3, 2)C(-9, 6, -3) are three points forming a triangle. AD, the bisector of angle BAC meets BC in D. Find the coordinates of the point D.

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12. Find the coordinates of the centroid of the triangle whose vertices are (x_1, y_1, z_1) , (x_2, y_2, z_2) and (x_3, y_3, z_3) .

13. The midpoints of the sides of a trianlge are

$$\left(3, 2, \frac{3}{2}\right), \left(1, \frac{3}{2}, 3\right)$$
 and $\left(2, \frac{5}{2}, \frac{5}{2}\right)$ Find

its vertices.

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14. Using section formula, prove that the three

points

A(-2, 3, 5), B(1, 2, 3) and C(7, 0, -1)

are collinear.





15. Show that the point (1, 2, 3) is common to

the lines which join A(4,8,12) to

B(2, 4, 6), and c(3, 5, 4) to D(5, 8, 5).

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Exercise 26 A

1. Find the distance from the origin to each of

the point:

(2, 2, 3)



2. Find the distance from the origin to each of

the point:

(4, -1, 2)

3. Find the distance from the origin to each of

the point:

 $(0,\,4,\,-4)$

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4. Find the distance from the origin to each of

the point:

$$(-4, -3, -2)$$

5. Find the distance between each of pair of

point:

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

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6. Find the distance between each of pair of point:

(0, 3, 0) and (6, 0, 2)

7. Find the distance between each of pair of

point:

(-4,-2,0) and (3,3,5)`



8. Show that the triangle with vetices (6, 10, 10), (1, 0, -5), (6, -10, 0) is a ritht-

abngled triangle, and find its area.



9. Show that the triangle with vertices A(3, 5, -4), B(-1, 1, 2)C(-5, -5, -2) is isosceles.

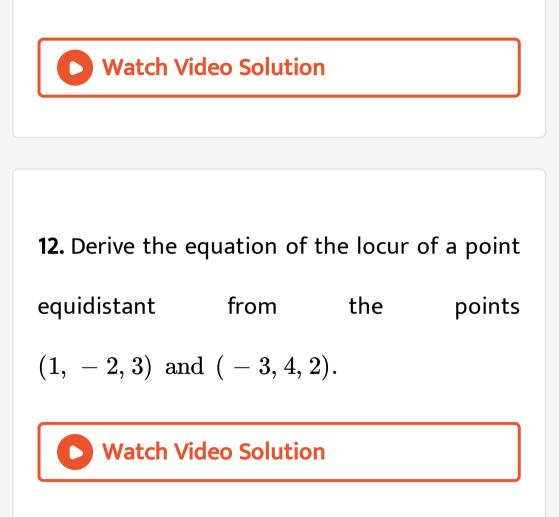
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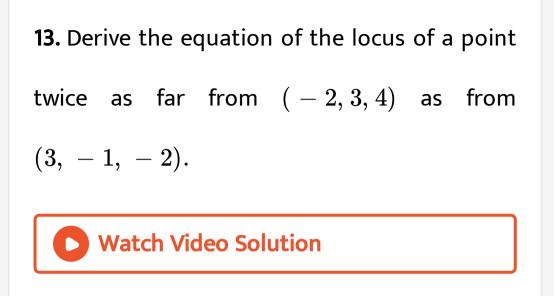
10.Showthat(4, 2, 4), (10, 2, -2) and (2, 0, -4) are the

vertices of an equilateral triangle.

11. Show that the point A (1,-1,3), B (2,-4,5) and

C (5,-13,11) are collinear.





14. Find the equation of the locus of a point whose distance from the y-axis is equal to its distance from (2, 1, -1).

15. Find the equation of the locus of point whose distance from the xy-plane is equal to its distance from the point(-1, 2, -3).

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16. A point moves so that the differerence of the squares of its distance from the x-axis and the y-axis is constant. Find the equation of its locus.

17. Find the equation of the locus of a point whose distanace from the z-axis is equal to its distance from the xy-plane.



Exercise 26 B

1. Find the coordinates of the points which divide the join of the points (2-1, 3) and (4,3,1) in the ratio 3:4 internally.





2. Find the coordinates of the points which divide the line joining the points (2,-4,3), (-4,5,-6) in the ratio (i) 1: 4 (ii) 2:1.

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3. Find the ratio in which the line joining the points (2, 4, 5), (3,5,-4) is divided by the yz-plane.

4. The three points A (0,0,0), B (2,-3, 3), C(-2,3,-3) are collinear. Find in what ratio each point divides the segment joining the other two.

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5. Find the coordinates of the points which

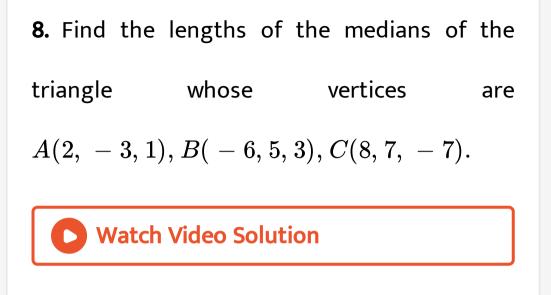
trisect AB given that A (2, 1, -3) and B (5,.- 8,3).

6. Find the coordinates of the point which is

three-fifths of the way from (3, 4, 5) to (-2, -1, 0).

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7. Show that the point (1, 2, 3) is common to the lines which join A(4, 8, 12) to B(2, 4, 6), and c(3, 5, 4) to D(5, 8, 5).



9. Find the point of intersection of the medians of the triangle with vertices (-1, -3, 4), (4, -2, -7), (2, 3, -8).

10. Find the ratio in which the join of A (2,1,5) and B (3,4,3) is divided by the plane 2x + 2y-2z=1. Also, find the coordinates of the point of division,



11. The mid-points of the sides of a triangle are

(1, 5, -1),(0,4,-2) and (2, 3, 4). Find its vertices.

12. 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 D.

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13. What is the locus of a point for which

(i)
$$x = 0, y = 0$$

(ii) y = 0, z = 0

(iii)
$$z = 0, x = 0$$

 $(\mathsf{iv})x = a, y = b$

(v)
$$y=b, z=0$$

(vi)z = c, x = a ?

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(v)
$$y=b, z=c$$

(vi)z = c, x = a?

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1. Find the point on y-axis which is equidistant

from the points (3, 1, 2) and (5, 5, 3),

2. Show that the points (a, b, c)(b, c, a) and (c, a, b) are the vertices of an equilateral triangle.



3. Find out whether the points (0, 7, 10), (-1, 6, 6) and (-4, 9, 6) are the

vertices of a right angled triangle.



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

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5. Find the lengths of the medians of the triangle A(0, 0, 6), B(0, 4, 0) and C(6, 0, 0)

6. Using section formula, show that the points

$$(2, -3, 4), (-1, 2, 1) \text{ and } \left(0, \frac{1}{3}, 2\right)$$
 are

collinear.



7. Find the ratio in which the y-z plane divides the line segment formed by joining the point

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