



MATHS

BOOKS - NCERT MATHS (HINGLISH)

INTRODUCTION TO THREE DIMENSIONAL GEOMETRY

Short Answer Type Questions

1. Locate the following points

(i) (1,-1,3) (ii) (-1,2,4)



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2. Name the octant in which each of the following points lie.

(i)(1,2,3), (ii) (4,-2,3)

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(4,-2,-5), (iv)(4,2,-5),
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(v)(-4,2,5), (iv)(-3,-1,6),

(vii)(2,-4,-7), (viii),(-4,2,-5)

3. If A,B,C be the feet of perpendiculars from a point p on the X,Y and Z- axes repsectively, then find the coordinates of A,Band C in each of the following where the point P is (i) A (3,4,2) (ii) B (-5,3,7) (iii) C (4,-3,-5)

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4. If A,B,and C be the feet of perpendiculars from a point P on the XY, YZ, and ZX- planes respectively, then find the coordinates of A , B

and C in each of the following where the point

P is .

(i) (3, 4, 5) (ii) (-5,3,7)

(iii) (4,-3,-5)

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5. How far part are the points (2,0,0) and

(-3,0,0) ?

6. Find the distance from the origin to (6,6,7).

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7. Show that , if
$$x^2+y^2=1$$
, then the point

$$\left(x,y,\sqrt{1-x^2-y^2}
ight)$$
 is at is distance 1 unit

form the origin.

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

(5,-13,11) are collinear.

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9. Three consective vertices of a parallelogram

ABCD are A (6, -2, 4), B (2, 4, -8) and C (-2, 2, 4).

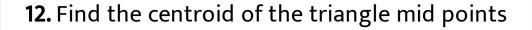
Find the condinates of the following

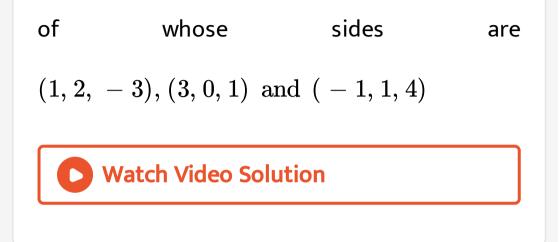
10. Show that the ΔABC with vertices A (0,4,

1), B (2, 3, -1) and C (4,5,0) is right angled.

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11. find th third vertex of triangle whose centroid is origin and two vertices are (2,4,6) and (0,-2,5)





13. The mid points of the sides of a triangle are (5, 7, 11), (0, 8, 5) and (2, 3, -1)Find its

vertices and hence find centroid.



14. If the vertices of a parallelogram ABCD are A (1,2,3). B (-1,-2,-1) and C (2,3,2) then find the fourth vertex D.

15. Find the coordinates of the points which trisect the line segment AB, given that A(2, 1, -3) and B(5, -8, 3).

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16. If the origin is the centroid of a triangle

ABC having vertices

 $A(a,1,3),\;B(\,-2,b,\;-5) and\;C(4,7,c)$

find the values of $a, \, b, \, \cdot$



17. If A (2,2,-3) B (5,6,9), C (2,7,9) be the vertices

of a triangle. The internal bisector of the angle

A meets BC at the point D, then find the

coordinates of D.



Long Answer Type Questions

1. Show that the three points A(2, 3, 4), B(-1, 2, -3) and C(-4, 1, -10) are collinear and find the ratio in which C divides AB.

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2. The mid-points of the sides of a tiangle are

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

also find the centroid of the triangle.



3. Prove that the points (0,-1,-7), (2,1,-9) and (6,5,-13) are collinear. Find the ratio in which the frist point divides the join of the other two.



4. Whhat are the coordinates of the vertices of a cube whose edge is 2 units, one of whose vertices coincides with the origin and the thrre edges passing thorugh the origin, coincides with the positive direction of the axes through the origin ?

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Objective Type Questions

1. The distance of point p(3, 4, 5) from the YZ

- plane is

A. 3 units

B. 4 units

C.5 units

D. 15 units

Answer: A

2. The length of the perpendicular drawn from

the point P(3, 4, 5) on y-axis is

A. $\sqrt{41}$

B. $\sqrt{34}$

 $\mathsf{C.}\,5$

D. none of these

Answer: B

3. Distance of the point (3, 4, 5) from the origin (0, 0, 0) is

A. $\sqrt{50}$

 $\mathsf{B.}\,3$

C. 4

 $\mathsf{D.}\,5$

Answer: A

4. If the distance between the points (a, 0, 1) and (0, 1, 2) is $\sqrt{27}$ then the value of a is

A. 5

 $B.\pm5$

C.-5

D. none of these

Answer: B

5. X -axis is the intersection of two planes.

A. XY and XZ

B. $\boldsymbol{Y}\boldsymbol{Z}$ and $\boldsymbol{Z}\boldsymbol{X}$

 $\operatorname{C.} XY \text{ and } YZ$

D. none of these

Answer: A

6. Write the equation which represents y - axis.

A.
$$x=0, y=0$$

B.
$$y=0$$
 and $z=0$

C.
$$z=0, x=0$$

D. none of these

Answer: C



7. the point (-2, -3, -4) lies in the

A. first octant

B. seventh octant

C. second octant

D. eight octant

Answer: B

8. The plane parallel to YZ - plane is perpendicular to

A. X - axis

B. Y- axis

C. Z - axis

D. none of these

Answer: A

9. What is the locus of a point (x, y, z) for

which y = 0, z = 0?

A. equation of x - axis

B. equation of y- axis

C. equation at z -axis

D. none of these

Answer: A

10. The locus of a point for which x=0 is

- A. XY plane
- B. YZ -plane
- C. ZX plane
- D. none of these

Answer: B



11. If a parallelopiped is formed by planes drawn through the points (5, 8, 10) and (3, 6, 8) parallel to the coordinate planes, then the length of diagonal of the parallelopiped is

A. $2\sqrt{3}$ B. $3\sqrt{2}$ C. $\sqrt{2}$ D. $\sqrt{3}$

Answer: A



12. L is the foot of the perpendicular drawn from a point p(3, 4, 5) on the XY - plane. The coordinates of point L are

A. 3, 0, 0

B.0, 4, 5

C.3, 0, 5

D. none of these

Answer: D



13. L is the foot of the perpendicular drawn from a point (3, 4, 5) on X-axis. The coordinates of L are.

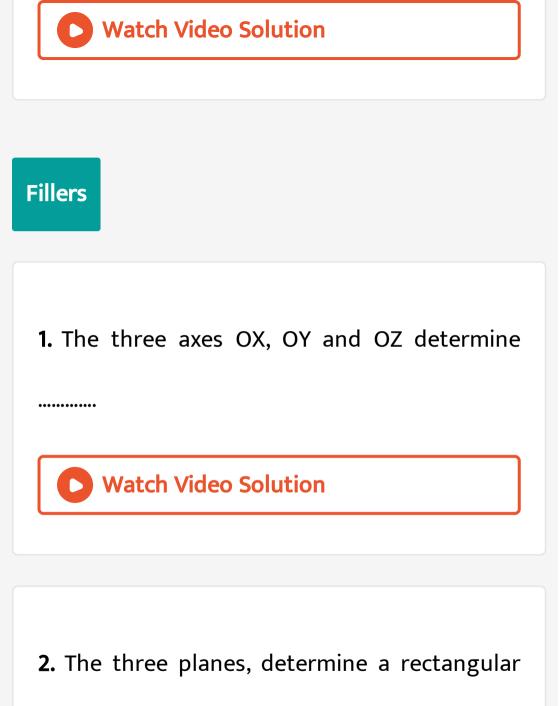
A. 3,0,0

B. 0,4,0

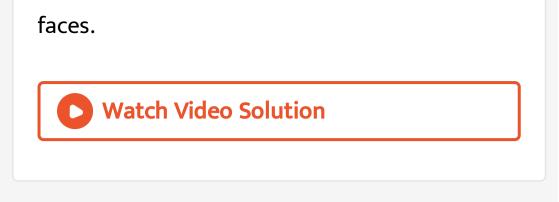
C. 0,0,5

D. none of these

Answer: A



parallelopiped which has Of rectangular



3. The coordiantes of a point are the perpendicular distance from the On the respectives axes.

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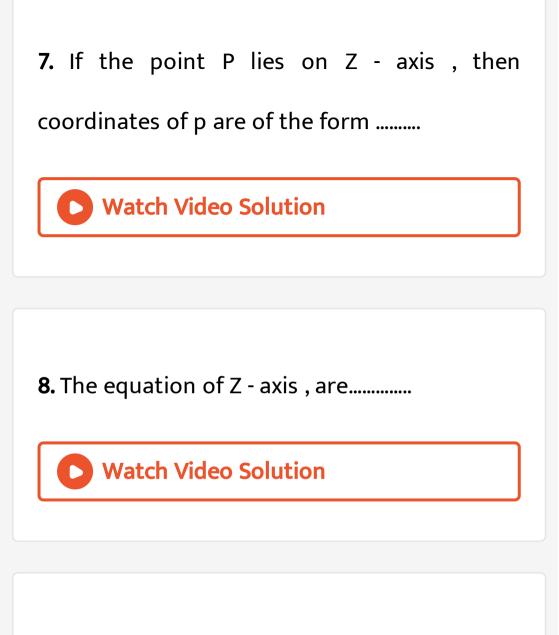
4. The Three coordiantes planes divide the space into Parts.



5. If a point P lies in YZ- plane , the n the coordinates of a point on YZ-plance is the form......

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6. The equation of YZ- plane is



9. A line is parallel to XY- plane if all the points

on the line have equal





10. A line is parallel to X-axis, if all the points on

the line have equal.....

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11. 45x=a represent a plane parallel to

 12. The plane parallel to YZ- plane is

 perpendicular to

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13. The length of the longest piece of a string that can be stetched straight in a rectangular room whose dimensions are 10,13 and 8 units

are



14. If the distance between the points P(a, 2, 1) and Q(1, -1, 1) is 5 units find the value of a.

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15. The coordinates of the mid points of sides AB, BC and CA of ABC are D(1, 2, -3), E(3, 0, 1) and F(-1, 1, -4) respectively. Write the coordinates of its centroid.

16. Match each item given under the column I

to its correct answer given under column II.

	Column I		Column N
(4)	in -XY-plane	(2)	ist octant
(1)	Point (2, 3, 4) lies in the	(6)	YZ-plane
(111)	Locus of the points having X coordinate 0 is	(C)	2-coordinate is zero
(m)	A line is parallel to X-axis if and only	(d)	Z-axis
(~)	If $X = 0$, $y = 0$ taken together will represent the	(e)	plane parallel to XY-plane
(~)	Z = C represent the plane	r)	if all the points on the line have equal y and 2-coordinates
(1)	Planes $X = a, Y = b$ represent the line	m	from the point on the respective
~	Coordinates of a point are the distances from the origin to the feet of perpendiculars	n	parallel to Z-axis
c)	A ball is the solid region in the space enclosed by a	Ø	disc
)	Region in the plane enclosed by a circle is known as a	Ø	sphere

