

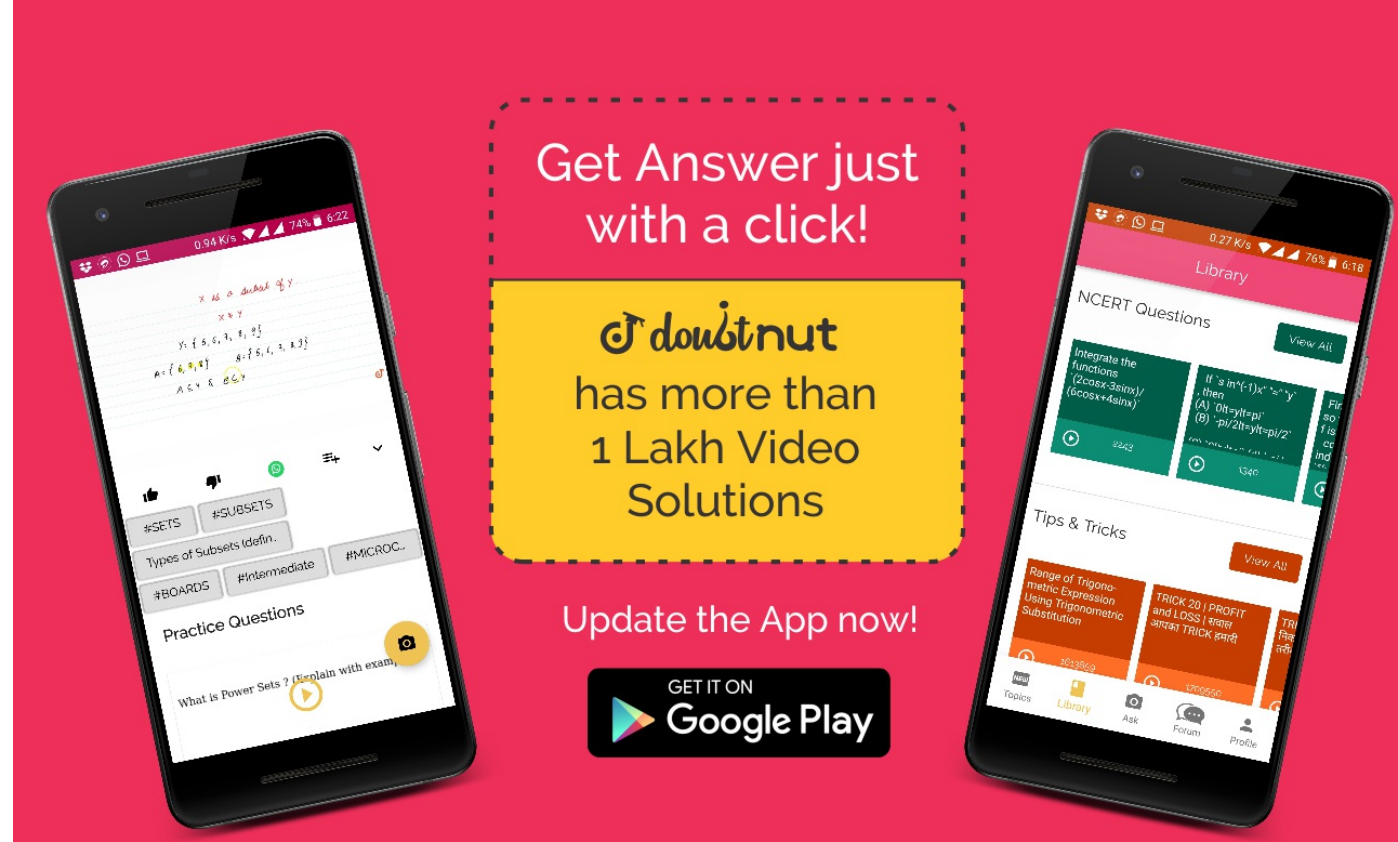
NCERT MATHS SOLUTIONS



Class - 11 || INTRODUCTION TO THREE DIMENSIONAL GEOMETRY

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Ques No.	Question
1	<p>NCERT - CLASS 11 - CHAPTER 12 INTRODUCTION TO THREE DIMENSIONAL GEOMETRY - EXERCISE 12.1 - Q 1</p> <p>A point is on the x-axis. What are its y-coordinate and z-coordinates?</p> <p>▶ Watch Free Video Solution on Doubtnut</p>
2	<p>NCERT - CLASS 11 - CHAPTER 12 INTRODUCTION TO THREE DIMENSIONAL GEOMETRY - EXERCISE 12.1 - Q 2</p> <p>A point is in the XZ-plane. What can you say about its y-coordinate?</p> <p>▶ Watch Free Video Solution on Doubtnut</p>
3	<p>NCERT - CLASS 11 - CHAPTER 12 INTRODUCTION TO THREE DIMENSIONAL GEOMETRY - EXERCISE 12.1 - Q 3</p> <p>Name the octants in which the following points lie: $(1, 2, 3)$, $(4, 2, 3)$, $(4, 2, 5)$, $(4, 2, 5)$, $(4, 2, 5)$, $(4, 2, 5)$, $(3, 1, 6)$, $(2, 4, 7)$.</p> <p>▶ Watch Free Video Solution on Doubtnut</p>
4	<p>NCERT - CLASS 11 - CHAPTER 12 INTRODUCTION TO THREE DIMENSIONAL GEOMETRY - EXERCISE 12.1 - Q 4</p> <p>Fill in the blanks: (i) The x-axis and y-axis taken together determine a plane known as ____ (ii) The coordinates of points in the XY-plane are of the form ____ (iii) Coordinate planes divide the space into ____ octants ____</p> <p>▶ Watch Free Video Solution on Doubtnut</p>
5	<p>NCERT - CLASS 11 - CHAPTER 12 INTRODUCTION TO THREE DIMENSIONAL GEOMETRY - EXERCISE 12.2 - Q 1</p> <p>Find the distance between the following pairs of points: (i) $(2, 3, 5)$ and $(4, 3, 1)$ (ii) $(3, 7, 2)$ and $(2, 4, 1)$ (iii) $(1, 3, 4)$ and $(1, 3, 4)$ (iv) $(2, 1, 3)$ and $(2, 1, 3)$.</p> <p>▶ Watch Free Video Solution on Doubtnut</p>



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NCERT - CLASS 11 - CHAPTER 12 INTRODUCTION TO THREE DIMENSIONAL GEOMETRY - EXERCISE 12.2 - Q 2

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

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

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

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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.

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10

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.

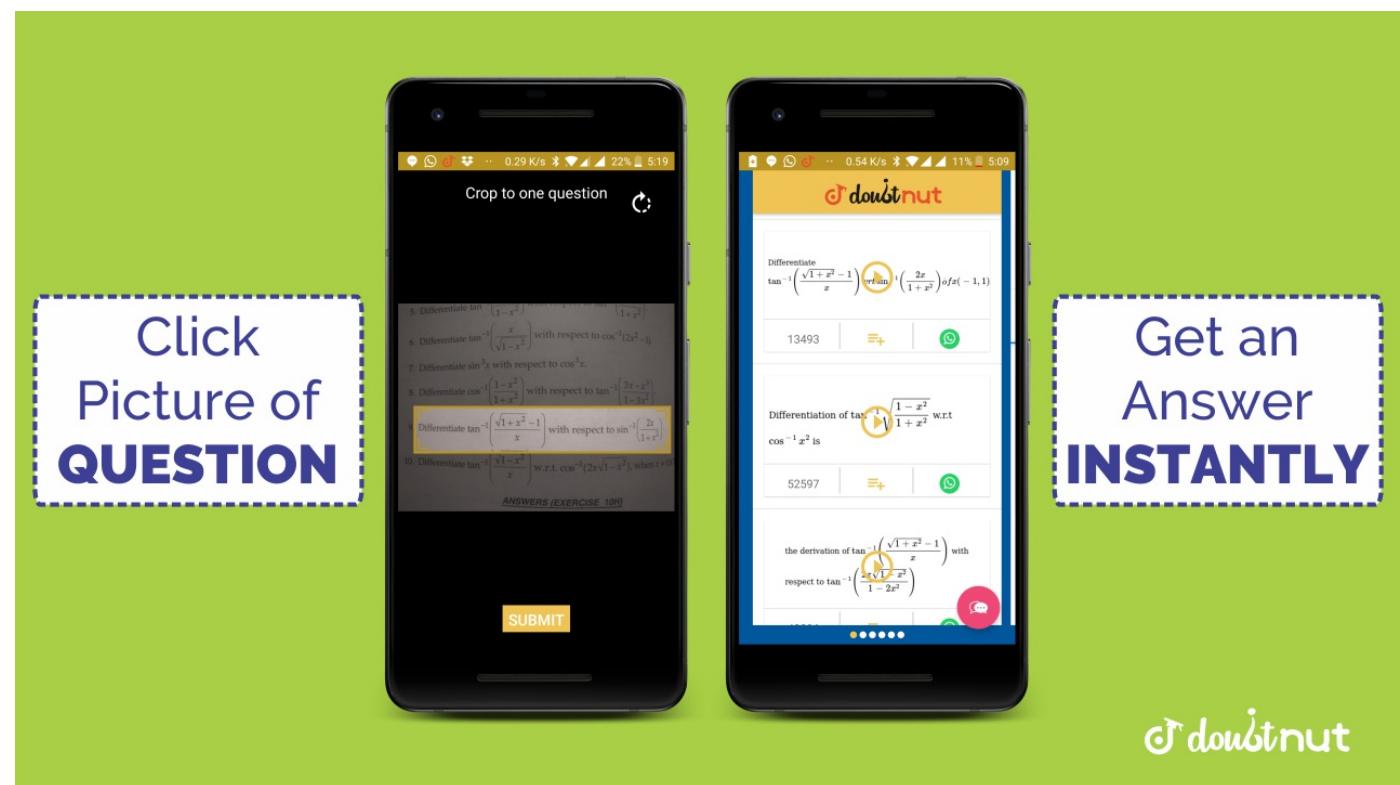
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Given that $P(3, 2, 4)$, $Q(5, 4, 6)$ and $R(9, 8, 10)$ are collinear. Find the ratio in which Q divides PR.

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Find the ratio in which the YZ-plane divides the line segment formed by joining the points $(2, 4, 7)$ and $(3, 5, 8)$.

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

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NCERT - CLASS 11 - CHAPTER 12 INTRODUCTION TO THREE DIMENSIONAL GEOMETRY - EXERCISE 12.3 - Q 5

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

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.

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16

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

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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.

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18

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

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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.

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20

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.

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In Figure, if P is (2, 4, 5), find the coordinates of F.

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Find the equation of the circle with center (−3, 2) and radius 4

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Find the distance between the points P (1, 3, 4) and Q (4, 1, 2).

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

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Are the points $A (3, 6, 9)$,
 $B (10, 20,$
 $30)$
 and
 $C (25, 41,$
 $5)$
 the vertices of a right angled triangle?

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Find the equation of set of points P such that $PA^2 + PB^2 = 2k^2$, where A and B are the points $(3, 4, 5)$ and $(1, 3, 7)$, respectively.

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

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

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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) .



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

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Show that the points $A (1, 2, 3)$, $B (1, 2, 1)$, $C (2, 3, 2)$ and $D (4, 7, 6)$ are the vertices of a parallelogram ABCD, but it is not a rectangle.

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Find the equation of the set of the points P such that its distances from the points $A (3, 4, 5)$ and $B (2, 1, 4)$ are equal.

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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 coordinates of the point C.

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