

Ques No.	Question
1 - 10405	<p>CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY</p> <p>Find the equation of the plane passing through the intersection of the planes</p> $\vec{r} \cdot \hat{i} + \hat{j} + \hat{k} = 6, \quad \vec{r} \cdot (2\hat{i} + 3\hat{j} + 4\hat{k}) = -5$ <p>and the point (1,1,1).</p> <p><a href="#">Click to watch Free Video Solution of this question on Doubtnut</a></p>
2 - 10406	<p>CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY</p> <p>Find the equation of the sphere which passing through the points (0, 0, 0), (0, 1, -1), (-1, 2, 0) and (1, 2, 3).</p> <p><a href="#">Click to watch Free Video Solution of this question on Doubtnut</a></p>
3 - 10407	<p>CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY</p> <p>Find the value of <math>\lambda</math>, which makes the vectors <math>\vec{a}</math>, <math>\vec{b}</math> and <math>\vec{c}</math> coplanar, where</p> $\vec{a} = \hat{i} + 3\hat{j} + 4\hat{k}, \quad \vec{b} = 2\hat{i} + \lambda\hat{j} + 2\hat{k}$ $\vec{c} = 4\hat{i} - 7\hat{j} + 10\hat{k}$ <p><a href="#">Click to watch Free Video Solution of this question on Doubtnut</a></p>

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

4 - 10494

Find the coordinates of the point where the line

$$\frac{x+1}{2} = \frac{y+2}{3} = \frac{z+3}{4} \text{ meets the plane } x+y+4z=6.$$

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5 - 10500

Find the image of the point  $(1, \sqrt{2}, \sqrt{3})$  in the plane

$$x+2y+4z=38$$

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6 - 10521

Find the equation of the sphere which passing through the points  $(3, 0, 0)$ ,  $(0, -1, 0)$ ,  $(0, 0, -2)$  and having the centre on the plane  $3x+2y+4z=1$ .

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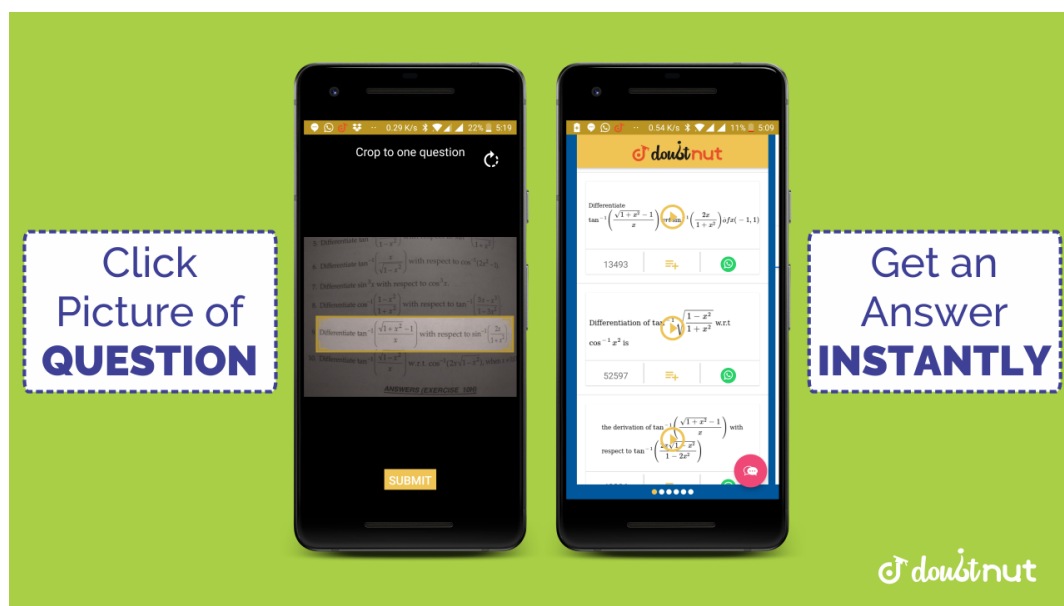
7 - 10522

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the equation of the plane which is perpendicular to the plane  $5x + 3y + 6z + 8 = 0$  and which contains the line of intersection of the planes

$$x + 2y + 3z - 4 = 0 \text{ and } 2x + y - z + 5 = 0$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

If the equation of a line A B is  $\frac{x-3}{1} = \frac{y+2}{-2} = \frac{z-5}{4}$ ,

8 - 10546

find the direction ratios of a line parallel to A B

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9 - 10555

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the equation of the line passing through the point

P(4, 6, 2) and the point of intersection of the line

$$\frac{x-1}{3} = \frac{y}{2} = \frac{z+1}{7} \text{ and the plane } x+y-z=8.$$

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10 - 10556

Find the distance of the point  $(-2, 3, -4)$  from the line  $\frac{x+2}{3} = \frac{2y+3}{4} = \frac{3z+4}{5}$  measured parallel to the plane  $4x + 12y - 3z + 1 = 0$ .

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11 - 10593

Find the equation of the plane passing through the point  $(3, 4, 1)$  and  $(0, 1, 0)$  and parallel to the line  $\frac{x+3}{2} = \frac{y-3}{7} = \frac{z-2}{5}$

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find the equation of tangent a

Find the equation of tangent to the curve 'x=a(th...

Find the equation of tangent to the curve 'x=a(th...

Find the equation of tangent to the curve 'y=sin^(-1...

If '3x^2-4' is a tangent to a circle whose center is ...

Find the equation of tangent to 'y=mt\_(x^2)^(x^3)(...

12 - 10594

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the equation of the plane passing through the point  $(-1, -1, 2)$  and perpendicular to each of the following planes:  $2x + 3y - 3z = 2$  and  $5x - 4y + z = 6$

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Find the shortest distance between the following lines:

13 - 10595

$$\frac{x - 3}{1} = \frac{y - 5}{-2} = \frac{z - 7}{1} \text{ and}$$
$$\frac{x + 1}{7} = \frac{y + 1}{-6} = \frac{z + 1}{1}$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the point on the line  $\frac{x + 2}{3} = \frac{y + 1}{2} = \frac{z - 3}{2}$  at a distance  $3\sqrt{2}$  from the point  $(1, 2, 3)$ .

14 - 10596

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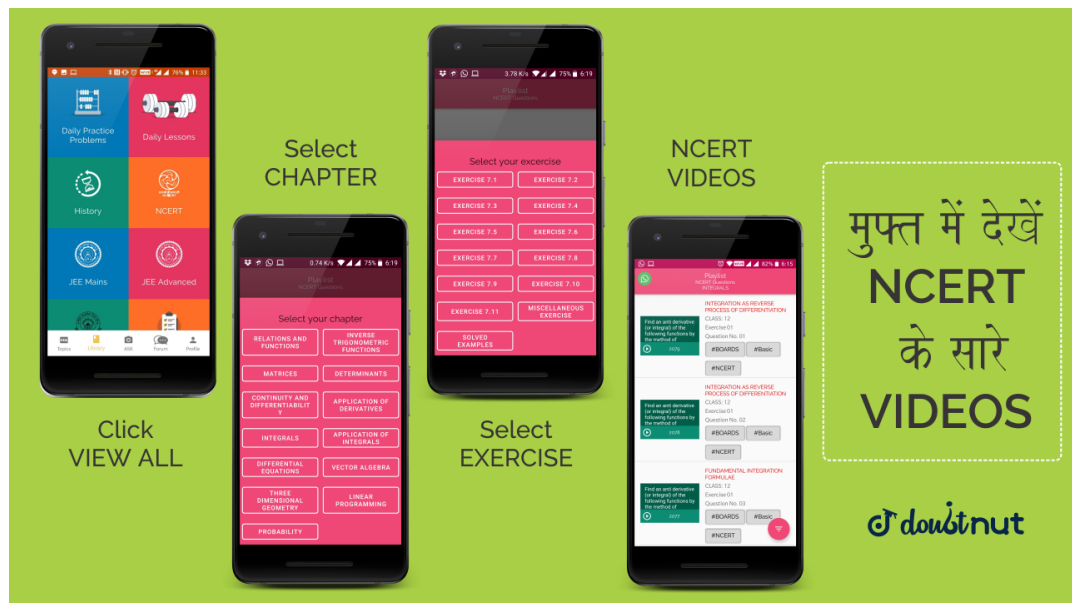
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Write the distance of the following plane from the origin:

$$2x - y + 2z + 1 = 0$$

15 - 10604

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16 - 10618

Find the equation of the plane passing through the point (-1, 3, 2) and perpendicular to each of the planes

$$x + 2y + 3z = 5 \text{ and } 3x + 3y + z = 0$$

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17 - 10630

Find the coordinates of the point where the line through (3, -4, -5) and (2, -3, 1) crosses the plane determined by points A(1, 2, 3), B(2, 2, 1) and C (-1, 3,

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18 - 10633

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Find the shortest distance between the following pair of lines and hence write whether the lines are intersecting or not :

$$\frac{x-1}{2} = \frac{y+1}{3} = z; \frac{x+1}{5} = \frac{y-2}{1}; z = 2$$

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19 - 10643

Find the equation of the plane determined by the points A(3, -1, 2), B(5, 2, 4) and C(-1, -1, 6) and hence find the distance between the plane and the point P(6, 5, 9).

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20 - 10654

Find the Cartesian equation of the line which passes through the point (2, 4, 5) and is parallel to the line

$$\frac{x+3}{3} = \frac{4-y}{5} = \frac{z+8}{6}$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the length of the perpendicular drawn from the origin to the plane  $2x + 3y + 6z + 21 = 0$ .

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the vector equation of the plane passing through three points with position vectors  $\hat{i} + \hat{j} - 2\hat{k}$ ,  $\hat{i} - \hat{j} + \hat{k}$  and  $\hat{i} + 2\hat{j} + \hat{k}$ . Also find the coordinates of the point of

22 - 10658

intersection of this plane and the line

$$\vec{r} = 3\hat{i} - \hat{j} - \hat{k} + \lambda(2\hat{i} - 2\hat{j} + \hat{k}).$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Solve the value of  $\lambda$  so that the line

$$\frac{1-x}{3} = \frac{7y-14}{2\lambda} = \frac{5z-10}{11} \text{ and}$$

23 - 10692

$$\frac{7-7x}{3\lambda} = \frac{y-5}{1} = \frac{6-z}{5} \text{ are perpendicular to each}$$

other.

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the Vector and Cartesian equations of the line passing through the point (1, 2, 4) and perpendicular to the two lines

24 - 10719

$$\frac{x - 8}{3} = \frac{y + 19}{-16} = \frac{z - 10}{7} \text{ and}$$

$$\frac{x - 15}{3} = \frac{y - 29}{8} = \frac{z - 5}{-5}$$

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Write the direction cosines of a line equally inclined to be three coordinate axes.

25 - 10729

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Find the distance of the plane  $3x + 4y + 12z = 3$  from the origin.

26 - 10741

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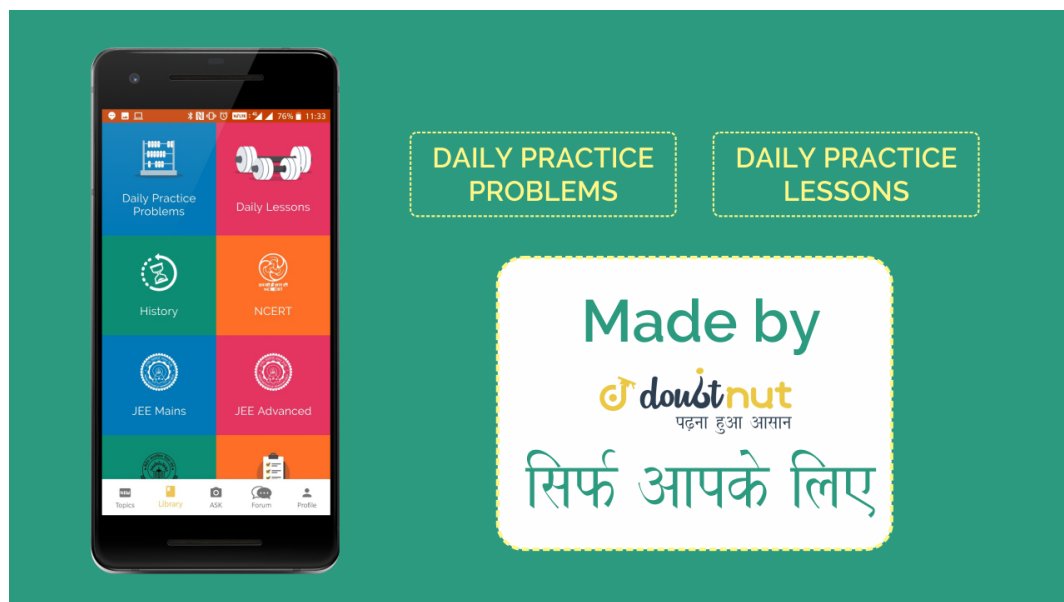
27 - 10755

Find the vector equation of the plane passing through the points  $(2, 1, 1)$  and  $(1, 3, 4)$  and perpendicular to the plane  $x - 2y + 4z = 10$ . Also show that the plane thus obtained contains the line

$$\vec{r} = -\hat{i} + 3\hat{j} + 4\hat{k} + \lambda (3\hat{i} - 2\hat{j} - 5\hat{k}).$$

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28 - 10773

Find the equation of the plane through the points  $(2, 1, 1)$  and  $(1, 3, 4)$  and perpendicular to the plane  $x - 2y + 4z = 10$ .

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29 - 10774

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the shortest distance between the following lines:

$$\frac{x + 1}{7} = \frac{y + 1}{-6} = \frac{z + 1}{1}; \frac{3 - x}{-1} = \frac{y - 5}{-2} = \frac{z - 7}{1}$$

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Find the shortest distance between the following lines

whose vector equations are:

30 - 10786

$$\vec{r} = (1 - t)\hat{i} + (t - 2)\hat{j} + (3 - 2t)\hat{k} \text{ and}$$

$$\vec{r} = (s + 1)\hat{i} + (2s - 1)\hat{j} - (2s + 1)\hat{k}.$$

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Find the distance of the point  $(-1, -5, -10)$ , from

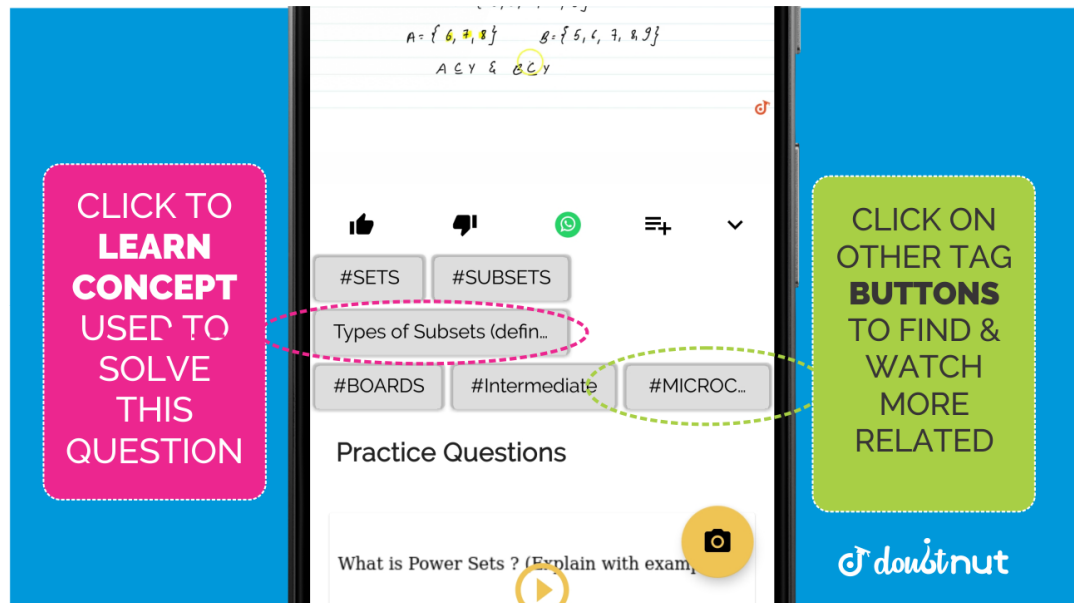
the point of intersection of the line

31 - 10791

$$\vec{r} = (2\hat{i} - \hat{j} + 2\hat{k}) + \lambda (3\hat{i} + 4\hat{j} + 2\hat{k}) \text{ and the}$$

$$\text{plane } \vec{r} \cdot \hat{i} - \hat{j} + \hat{k} = 5$$

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32 - 10807

Write the cartesian equation of a plane, bisecting the line segment joining the points A (2, 3, 5) and B (4, 5, 7) at right angles.

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33 - 10819

Write the direction cosines of the vector  $-2\hat{i} + \hat{j} - 5\hat{k}$

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34 - 10830

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

If the lines  $\frac{x - 1}{-3} = \frac{y - 2}{-2y} = \frac{z - 3}{2}$  and

$\frac{x - 1}{k} = \frac{y - 2}{1} = \frac{z - 3}{5}$  are perpendicular, find the

value of  $k$  and hence find the equation of plane containing these lines.

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

35 - 10867

Find the direction cosines of the line passing through the following points:  $(-2, 4, -5)$ ,  $(1, 2, 3)$ .

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36 - 10879

If a line has direction ratios  $2, -1, -2$ , then what are its direction cosines?

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37 - 10900

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the distance of the point  $P(6,5,9)$  from the plane determined by the points  $A(3, -1, 2)$ ,  $B(5, 2, 4)$  and  $C(-1, -1, 6)$ .

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38 - 10902

Find the points on the line  $\frac{x + 2}{3} = \frac{y + 1}{2} = \frac{z - 3}{2}$  at a distance of 5 units from the point  $P(1, 3, 3)$ .

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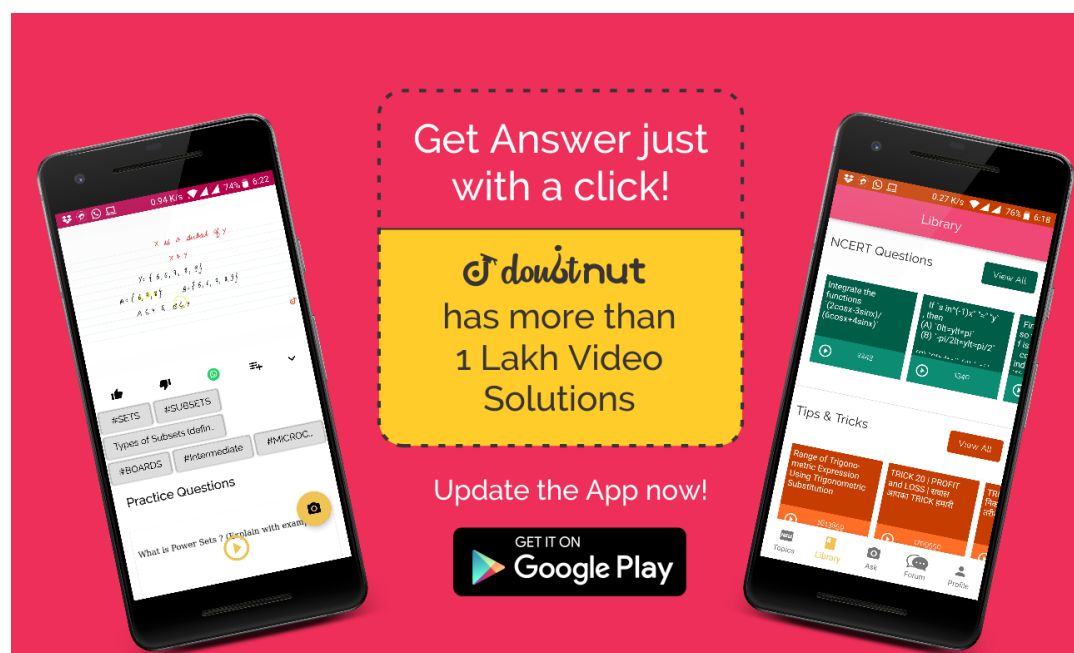
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39 - 10908

Find the coordinates of the foot of the perpendicular and the perpendicular distance of the point  $P(3, 2, 1)$  from the plane  $2x - y + z + 1 = 0$ . Find also, the image of the point in the plane.

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Write the direction cosines of a line parallel to z-axis.

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the vector equation of the plane which contains the line

of intersection of the plane  $\vec{r} \cdot \hat{i} + 2\hat{j} + 3\hat{k} - 4 = 0$  and

41 - 10932

$\vec{r} \cdot 2\hat{i} + \hat{j} - \hat{k} + 5 = 0$  and which is perpendicular to the

plane  $\vec{r} \cdot 5\hat{i} + 3\hat{j} - 6\hat{k} + 8 = 0$ .

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Find the coordinates of the point, where the line

$\frac{x - 2}{3} = \frac{y + 1}{4} = \frac{z - 2}{2}$  intersects the plane

42 - 10933

$x - y + z - 5 = 0$ . Also find the angle between the line

and the plane.

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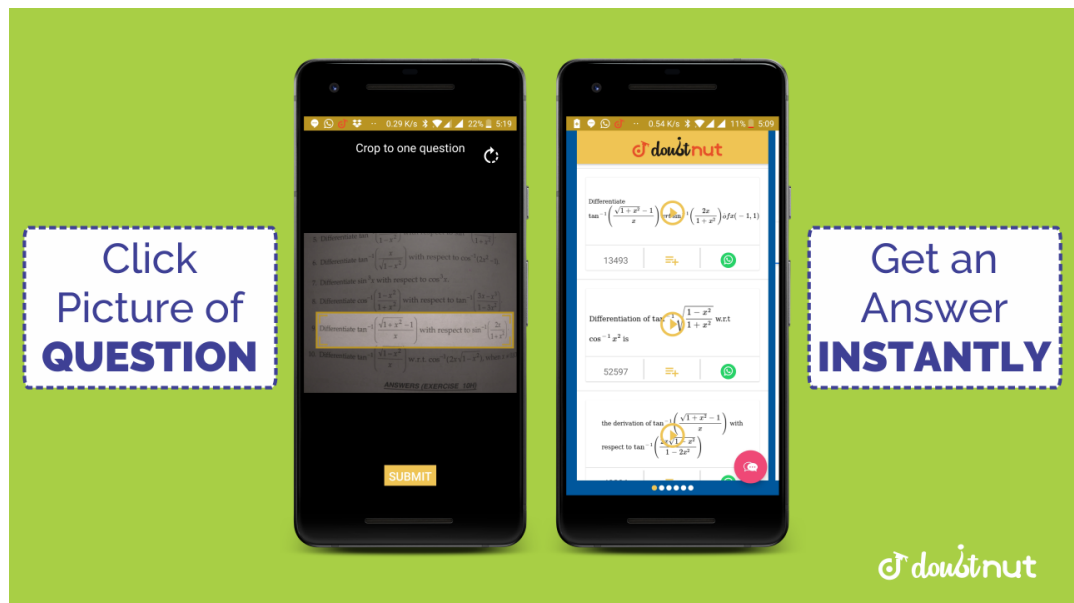
Find the angle between the line

$\frac{x + 1}{2} = \frac{3y + 5}{9} = \frac{3 - z}{-6}$  and the plane

43 - 10945

$10x + 2y - 11z = 3$

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44 - 10951

Write the intercept cut off by the plane  $2x + y - z = 5$  on  $x - a\xi s$ .

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45 - 10968

Find the shortest distance between the following two lines:

$$\vec{r} = (1 + \lambda)\hat{i} + (2 - \lambda)\hat{j} + (\lambda + 1)\hat{k};$$

$$\vec{r} = (2\hat{i} - \hat{j} - \hat{k}) + \mu(2\hat{i} + \hat{j} + 2\hat{k})$$

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46 - 10970

Find the equation of the plane determined by the points  $(A(3, -1, 2), B(5, 2, 4)$  and  $C(-1, -1, 6)$ . Also find the distance of the point  $P(6, 5, 9)$  from the plane.

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47 - 10991

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Find the image of the point having position vector

$$\hat{i} + 2\hat{j} + 4\hat{k} \text{ in the plane } \vec{r} \cdot 2\hat{i} - \hat{j} + \hat{k} + 3 = 0.$$

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48 - 10992

Find the equation of a plane which is at a distance of  $3\sqrt{3}$  units from origin and the normal to which is equally inclined to the coordinate axes.

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49 - 11008

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Find the vector and cartesian equations of the line passing through the point  $P(1, 2, 3)$  and parallel to the planes

$$\vec{r} \cdot \hat{i} - \hat{j} + 2\hat{k} = 5 \text{ and } \vec{r} \cdot 3\hat{i} + \hat{j} + \hat{k} = 6.$$

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50 - 11019

Write the direction-cosines of the line joining the points (1, 0, 0) and (0, 1, 1).

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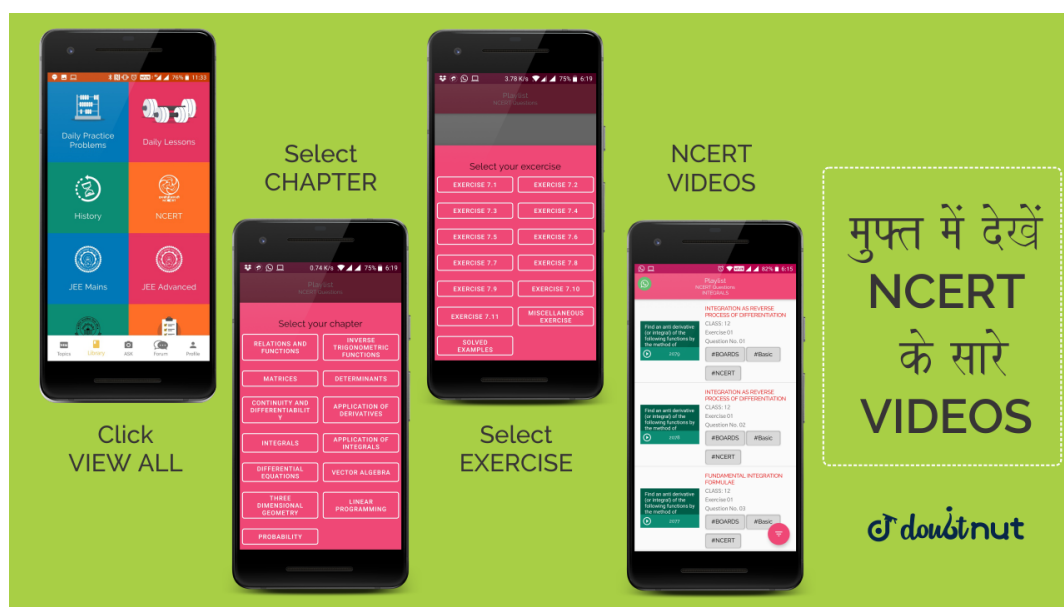
51 - 11027

Find the equation of the plane which contains the line of intersection of the planes  $\vec{r} \cdot (\hat{i} + 2\hat{j} + 3\hat{k}) - 4 = 0$ ,  $\vec{r} \cdot 2\hat{i} + \hat{j} - \hat{k} + 5 = 0$  and

which is perpendicular to the plane  $\vec{r} \cdot 5\hat{i} + 3\hat{j} - 6\hat{k} + 8 = 0$ .

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52 - 11029

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Find the angle between the following pair of lines:

$$\frac{-x + 2}{-2} = \frac{y - 1}{7} = \frac{z + 3}{-3} \text{ and}$$

$$\frac{x + 2}{-1} = \frac{2y - 8}{4} = \frac{z - 5}{4} \text{ and check whether the lines}$$

are parallel or perpendicular.

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Show that the lines

$$\frac{x + 3}{-3} = \frac{z - 5}{5}; \frac{x + 1}{-1} = \frac{y - 2}{2} = \frac{z - 5}{5} \text{ are}$$

53 - 11071

coplanar. Also find the equation of the plane containing the lines.

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find a unit vector in the direction of  $\vec{a} = 2\hat{i} - 3\hat{j} + 6\hat{k}$

54 - 11081

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the Cartesian equation of the plane passing through the points  $A (0, 0, 0)$  and  $b(3, -1, 2)$  and parallel to the

55 - 11084

$$\text{line } \frac{x - 4}{1} = \frac{y + 3}{-4} = \frac{z + 1}{7}$$

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What is the cosine of the angle which the vector

56 - 11085

$$\sqrt{2}\hat{i} + \hat{j} + \hat{k} \text{ makes with } y - axis?$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Find the distance of the point  $(-1, -5, -10)$  from the point of intersection of the line

57 - 13226

$$\vec{r} = 2\hat{i} - \hat{j} + 2\hat{k} + \lambda(3\hat{i} + 4\hat{j} + 2\hat{k}) \text{ and the plane } \vec{r} \cdot \hat{i} - \hat{j} + \hat{k} = 5.$$

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58 - 13237

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Find the unit vector perpendicular to the plane ABC where the position vectors of A, B and C are

$$2\hat{i} - \hat{j} + \hat{k}, \hat{i} + \hat{j} + 2\hat{k} \text{ and } 2\hat{i} + 3\hat{k} \text{ respectively.}$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Write the equation of the straight line through the point  $(\alpha, \beta, \gamma)$  and parallel to z-axis.

59 - 13242

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3 Minors and cofactors View All(3)

Definition

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4 Properties of determinants View All(4)

Let A be a square matrix of order n, then the sum of the product of elements of any...  
 Let A be a square matrix of order n, then the sum of the product of elements of any...  
 Let A be a square matrix of order n, then the sum of the product of elements of any...  
 Let A be a square matrix of order n, then the sum of the product of elements of any...



CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 11. THREE DIMENSIONAL GEOMETRY

Write the vector equation of the plane, passing through the point  $(a,b,c)$  and parallel to the plane  $\vec{r} \cdot \hat{i} + \hat{j} + \hat{k} = 2$ .

60 - 13251

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