MATHS

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

PLANE

Practice Exercise Exercise 1 Topical Problems

1. A plane II makes intercept 3 and 4 respectively on x and z axes. If II is parallel to y-axis, then its equation is

A. $3x + 4z = 12$

B. $3z + 4x = 12$

C. $3y + 4z = 12$

D. $3x + 4y = 12$

Answer: A

Watch Video Solution

2. Let $P(3, 2, 6)$ be a point in space and Q be a point on line $\vec{r} = \left(\hat{i} - \hat{j} + 2\hat{k}\right) + \mu\left(-3\hat{i} + \hat{j} + 5\hat{k}\right)$. Then the value of μ for which the vector $\vec{PQ}$ is parallel to the plane $x - 4y + 3z = 1$ is a. 1/4 b. -1/4 c. 1/8 d. -1/8

A. $\frac{1}{4}$

B. $-\frac{1}{4}$

C. $\frac{1}{8}$

D. $-\frac{1}{8}$

Answer: A

Watch Video Solution

3. Find the Cartesian form the equation of the plane $\vec{r} = (s - 2t)\hat{i} + (3 - t)\hat{j} + (2s + t)\hat{k}$.

A. $2x - 5y - z - 15 = 0$

B. $2x - 5y + z - 15 = 0$

C. $2x - 5y - z + 15 = 0$

D. $2x + 5y - z + 15 = 0$

Answer: C

Watch Video Solution

4. The intercepts of the plane $2x - 3y + 4z = 12$ on the coordinate axes are given by

A. $3, -2, 1.5$

B. $6, -4, 3$

C. $6, -4, -3$

D. $2, \ -3, 4$

Answer: B

Watch Video Solution

5. The equation of a plane through the point $(2, 3, 1)$ and $(4, \ -5, 3)$ and parallel to x-axis

A. $x + y + 4z = 7$

B. $x + 4z = 7$

C. $y = 4z = 7$

D. $y + 4z = 7$

Answer: D

Watch Video Solution

6. Find the equation of a plane containing the line of intersection of the planes $x+y+z-6=0 and 2x+3y+4z+5=0$ passing through $(1,1,1)$.

A. $x+y+z=3$

B. $x+2y++3z=6$

C. $2x+3y+4z=9$

D. $3x+4y+5z=18$

Answer: B

Watch Video Solution

7. Find the equation of a plane passing through the points A(a,0,0), B(0,b,0) and C(0,0,c)`.

A. $ax+by+cz=0$

B. $ax + by + cz = 1$

C. $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1$

D. $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 0$

Answer: C

Watch Video Solution

8. A plane makes intercepts a,b,c at A,B,C on the coordinate axes respectively. If the centroid of the ΔABC is at (3,2,1), then the equation of the plane is

A. $x + 2y + 3z = 9$

B. $2x - 3y - 6z = 18$

C. $2x + 3y + 6z = 18$

D. $2x + y + 6z = 18$

Answer: C

Watch Video Solution

9. The equation of the plane passing through the points (1,2,3), (-1,4,2) and (3,1,1) is

A. $5x + y + 12z - 23 = 0$

B. $5x + 6y + 2z - 23 = 0$

C. $x + 6y + 2z - 13 = 0$

D. $x + y + z - 13 = 0$

Answer: B

Watch Video Solution

10. Let P(-7,1,-5) be a point on a plane and let O be the origin. If OP is normal to the plane, then the equation of the plane is

A. $7x - y + 5z + 75 = 0$

B. $7x + y - 5z + 73 = 0$

C. $7x + y + 5z + 73 = 0$

D. $7x - y - 5z + 75 = 0$

Answer: A

Watch Video Solution

11. The line drawn from point (4,-1,2) to the point (-3,2,3) meets a plane at right angle at the point (-10,5,4), then the equation of plane is

A. $7x + 3y + z + 89 = 0$

B. $7x - 3y - z + 89 = 0$

C. $7x - 3y + z + 89 = 0$

D. None of these

Answer: B

Watch Video Solution

Watch Video Solution

12. The line passing through the points (5, 1, a) and (3, b, 1) crosses the yzplane at the point $\left(0, \frac{17}{2}, \frac{-13}{2}\right)$ .Then (1) $a = 2, b = 8$ (2) $a = 4, b = 6$ (3) $a = 6, b = 4$ (4) $a = 8, b = 2$

A. $a = 2, b = 8$

B. $a = 4, b = 6$

C. $a = 6, b = 4$

D. $a = 8, b = 2$

Answer: C

Watch Video Solution

13. The equation of the plane through the intersection of the planes $x + y + z = 1$ and $2x + 3y - z + 4 = 0$ and parallel to x-axis is

A. $y - 3z + 6 = 0$

B. $3y - z + 6 = 0$

C. $y + 3z + 6 = 0$

D. $3y - 2z + 6 = 0$

Answer: A

Watch Video Solution

14. The equation of the plane passing through the mid - point of the line joining the points (1,2,3) and (3,4,5) and perpendicular to it is

A. $x + y + z = 9$

B. $x + y + z = -9$

C. $2x + 3y + 4z = 9$

D. $2x + 3y + 4z = -9$

Answer: A

Watch Video Solution

15. The equation of the line of intersection of the planes $x + 2y + z = 3$ and $6x + 8y + 3z = 13$ can be written as

A. $\frac{x-2}{2} = \frac{y+1}{-3} = \frac{z-3}{4}$

B. $\frac{x-2}{2} = \frac{y+1}{3} = \frac{z-3}{4}$

C. $\frac{x+2}{2} = \frac{y-1}{-3} = \frac{z-3}{4}$

D. $\frac{x+2}{2} = \frac{y+2}{3} = \frac{z-3}{4}$

Answer: A

Watch Video Solution

16. Find the equations of the line passing through the point $(3, 0, 1)$ parallel to the planes $x + 2y = 0$ and $3y - z = 0$.

A. $\frac{x-3}{-2} = \frac{y-0}{1} = \frac{z-1}{3}$

B. $\frac{x-3}{1} = \frac{y-0}{-2} = \frac{z-1}{3}$

C. $\frac{x-3}{3} = \frac{y-0}{1} = \frac{z-1}{-2}$

D. None of these

Answer: A

Watch Video Solution

17. The equation of the plane passing through the intersection of $x + 2y + 3x + 4 = 0$ and $4x + 3y + 2z + 1 = 0$ and the origin $(0.0, 0)$ is

A. $3x + 2y + z + 1 = 0$

B. $3x + 2y + z = 0$

C. $2x + 3y + z = 0$

D. $x + y + z = 0$

Answer: B

Watch Video Solution

18. The equation of the plane passing through (2,1,5) and parallel to the plane 3x-4y+5z=4 is

A. $3x - 4y + 5z - 27 = 0$

B. $3x - 4y + 5z + 21 = 0$

C. $3x - 4y + 5z + 26 = 0$

D. $3x - 4y + 5z + 17 = 0$

Answer: A

Watch Video Solution

Watch Video Solution

19. The position vectorof the point where the line $\vec{r} = \hat{i} - \hat{j} + \hat{k} + t\left(\hat{i} + \hat{j} - \hat{k}\right)$ meets the plane $\vec{r} \cdot \left(\hat{i} + \hat{j} + \hat{k}\right) = 5$, is

A. $5\hat{i} + \hat{i} - \hat{k}$

B. $5\hat{i} + 3\hat{j} - 3\hat{k}$

C. $2\hat{i} + \hat{j} + 2\hat{k}$

D. $5\hat{i} + \hat{j} - \hat{k}$

Answer: B

Watch Video Solution

20. The equation of the plane passing through the points (1,1,1) and (1,-1,-1) and perpendicular to plane $2x - y + z = 0$ is

A. $x + y + z + 1 = 0$

B. $x + y - z - 1 = 0$

C. $x + y - z + 1 = 0$

D. $x + y + z - 1 = 0$

Answer: B

Watch Video Solution

21. Find the equation of the line of intersection of the planes $4x + 4y - 5z = 12, 8x + 12y - 13z = 32$ in the symmetric form.

A. $\frac{x-1}{2} = \frac{y+2}{-3} = \frac{z}{4}$

B. $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z}{4}$

C. $\frac{x}{2} = \frac{y+1}{3} = \frac{z-2}{4}$

D. $\frac{x}{2} = \frac{y}{3} = \frac{z-2}{4}$

Answer: B

Watch Video Solution

22. The equation of the plane passing through three non - collinear points with positions vectors a,b,c, is

A. $r \cdot (b \times c + c \times a + a \times b)$

B. $r \cdot (b \times c + c \times a + a \times b) = [\mathrm{a\,b\,c}]$

C. $r \cdot (a \times (b + c)) = (abc)$

D. $r \cdot (a + b + c) = 0$

Answer: B

Watch Video Solution

23. The equation of the plane passing through three points A,B,C with position vectors $-6\hat{i}+3\hat{j}+2\hat{k}, 3\hat{i}-2\hat{j}+4\hat{k}, 5\hat{i}+7\hat{j}+3\hat{k}$, is

A. $r\cdot\left(\hat{i}-\hat{j}-7\hat{k}\right)+23=0$

B. $r\cdot\left(\hat{i}+\hat{j}+7\hat{k}\right)=23$

C. $r\cdot\left(\hat{i}+\hat{j}-7\hat{k}\right)+23=0$

D. $r\cdot\left(\hat{i}-\hat{j}-7\hat{k}\right)=23$

Answer: A

Watch Video Solution

24. Distance of the point of intersection of the line $\frac{x-3}{1}=\frac{y-4}{2}=\frac{z-5}{2}$ and plane $x+y+z=2$ from the point (3,4,5) is

A. 0

B. 6

C. 13

D. 7

Answer: B

Watch Video Solution

25. The distance of the point (1, 0, 2) from the point of intersection of the line $\frac{x-2}{3}=\frac{y+1}{4}=\frac{z-2}{12}$ and the plane x y + z = 16, is : (1) $2\sqrt{14}$ (2) 8 (3) $3\sqrt{21}$ (4) 27

A. $2\sqrt{14}$

B. 3

C. $3\sqrt{21}$

D. 13

Answer: D

Watch Video Solution

26. The image of the line $\frac{x-1}{3}=\frac{y-3}{1}=\frac{z-4}{-5}$ in the plane $2x-y+z+3=0$ is the line (1) $\frac{x+3}{3}=\frac{y-5}{1}=\frac{z-2}{-5}$ (2) $\frac{x+3}{-3}=\frac{y-5}{-1}=\frac{z+2}{5}$ (3) $\frac{x-3}{3}=\frac{y+5}{1}=\frac{z-2}{-5}$ (3) $\frac{x-3}{-3}=\frac{y+5}{-1}=\frac{z-2}{5}$

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

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

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

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

Answer: A

Watch Video Solution

27. Find the vector equation of a plane which is at a distance of 7 units from the origin and normal to the vector $3\hat{i} + 5\hat{j} - 6\hat{k}$.

A. $\frac{3}{\sqrt{70}}x + \frac{5}{\sqrt{70}}y - \frac{6}{\sqrt{70}}z = 7$

B. $3x + 5y - 6z = 7$

C. $3\sqrt{70}x + 5\sqrt{70}y - 6\sqrt{70z} = 7$

D. None of the above

Answer: A

Watch Video Solution

28. The equation of the plane perpendicular to the line $\frac{x-1}{1} = \frac{y-2}{-1} = \frac{z+1}{2}$ and passing through the point (2,3,1), is

A. $r \cdot \left(\hat{i} + \hat{j} + 2\hat{k}\right) = 1$

B. $r \cdot \left(\hat{i} - \hat{j} - 2\hat{k}\right) = 1$

C. $r \cdot \left(\hat{i} - \hat{j} - 2\hat{k}\right) = 7$

D. $r \cdot \left(\hat{i} + \hat{j} + 2\hat{k}\right) = 10$

Answer: B

Watch Video Solution

29. Find the distance between the planes $r \cdot \left(2\hat{i} - \hat{j} + 3\hat{k}\right) = 4$ and $r \cdot \left(6\hat{i} - 3\hat{j} + 9\hat{k}\right) + 13 = 0$

A. $\frac{5}{3\left(\sqrt{14}\right)}$

B. $\frac{10}{3\left(\sqrt{14}\right)}$

C. $\frac{25}{3\left(\sqrt{14}\right)}$

D. None of these

Answer: C

Watch Video Solution

30. The position vectors of the points where the line $r = \hat{i} - \hat{j} + \hat{k} + t\left(\hat{i} + \hat{j} - \hat{k}\right)$ meets the plane $r \cdot \left(\hat{i} + \hat{j} + \hat{k}\right) = 5$, is

A. $5\hat{i} + \hat{j} + \hat{k}$

B. $5\hat{i} + 3\hat{j} - 3\hat{k}$

C. $2\hat{i} + \hat{j} + 2\hat{k}$

D. $5\hat{i} + \hat{j} + \hat{k}$

Answer: B

Watch Video Solution

31. The line perpendicular to the plane $2x - y + 5z = 4$ passing through the point (-1,0,1) is (A) $(x + 1) = -y = \frac{z - 1}{-5}$ (B)

$\frac{x+1}{-2} = y = \frac{z-1}{5}$ (C) $\frac{x=1}{2} = -y = \frac{z-1}{5}$ (D)

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

A. $\frac{x+1}{2} = -y = \frac{z-1}{-5}$

B. $\frac{x+1}{-2} = y = \frac{z-1}{-5}$

C. $\frac{x+1}{2} = -y = \frac{z-1}{5}$

D. $\frac{x+1}{2} = y = \frac{z-1}{5}$

Answer: C

Watch Video Solution

32. If the plane $2x - y + z = 0$ is parallel to the line $\frac{2x-1}{2} = \frac{2-y}{2} = \frac{z+1}{a}$, then the value of a is

A. 4

B. -4

C. 2

D. -2

Answer: B

Watch Video Solution

33. The equation of passing through line $\frac{x-1}{2}=\frac{y+1}{-1}=\frac{z-3}{4}$ and perpendicular to the plane $x+2y+z=12$ is given by $ax+by+cz+4=0$, then

A. $a=-8, b=2, c=-5$

B. $a=-9, b=-2, c=-5$

C. $a=9, b=-2, c=-5$

D. None of these

Answer: C

Watch Video Solution

34. If from a point $P(a, b, c)$ perpendiculars $PAandPB$ are drawn to $YZandZX - planes$ find the vectors equation of the plane OAB.

A. $bcx + cay + abz = 0$

B. $bcx + acy - abz = 0$

C. $bcx - cay + abz = 0$

D. $-bcx + cay + abz = 0$

Answer: B

Watch Video Solution

35. If the plane $3x + y + 2z + 6 = 0$ is parallel to the line $\frac{3x-1}{2b} = 3 - y = \frac{z-1}{a}$. then the value of $3a + 3b$ is

A. $\frac{1}{2}$

B. $\frac{3}{2}$

C. 3

D. 4

Answer: B

Watch Video Solution

36. The equation of the plane through $P(x_1, y_1, z_1)$ and perpendicular to OP, (O being the origin) is

A. $xx_1 + yy_1 + zz_1 = x_1 + y_1$

B. $xx_1 + yy_1 + zz_1 = y_1 + z_1$

C. $xx_1 + yy_1 + zz_1 = x_1^2 + y_1^2 + z_1^2$

D. $xx_1 + yy_1 = z + z_1$

Answer: C

Watch Video Solution

37. The equation of the plane through the points (2,-1,0), (3,-4,5) parallel to a line with direction cosines proportional to 2,3,4 is 9x-2y-3z=k, where k is

A. 20

B. -20

C. 10

D. -10

Answer: A

Watch Video Solution

Practice Exercise Exercise 1 Topical Problems Angle Between The Planes And Angle Between Line And Plane

1. The planes: $2xy + 4z = 5and5x2.\ 5y + 10z = 6$are(A) Perpendicular (B) Parallel(C) intersect y-axis (D) passes through $\left(0, 0, \frac{5}{4}\right)$

A. perpendicular

B. parallel

C. intersect along Y-axis

D. Passes through $\left(0, 0, \frac{5}{4}\right)$

Answer: B

Watch Video Solution

2. Angle between the line $\frac{x+1}{1} = \frac{y}{2} = \frac{z-1}{1}$ and the plane, $x + y + z + 5 = 0$ is

A. 0°

B. 30°

C. 45°

D. 90°

Answer: A

Watch Video Solution

3. The angle between the line $\frac{x-3}{2} = \frac{y-1}{1} = \frac{z+4}{-2}$ and the plane, $x + y + z + 5 = 0$ is

A. $\sin^{-1}\left(\frac{2}{\sqrt{3}}\right)$

B. $\sin^{-1}\left(\frac{1}{\sqrt{3}}\right)$

C. $\frac{\pi}{4}$

D. $\sin^{-1}\left(\frac{1}{3\sqrt{3}}\right)$

Answer: D

Watch Video Solution

4. If the angle θ between the line $\frac{x+1}{1} = \frac{y-1}{2} = \frac{z-2}{2}$ and the plane $2x - y + \sqrt{\lambda z} + 4 = 0$ is such that $\sin\theta = \frac{1}{3}$, the value of λ is

A. $-\frac{4}{3}$

B. $\frac{3}{4}$

C. $\frac{-3}{5}$

D. $\frac{5}{3}$

Answer: D

Watch Video Solution

5. The angle between

$r = (1+2\mu)\hat{i} + (2+\mu)\hat{j} + (2\mu-1)\hat{k}$ and the plane $3x - 2y + 6z = 0$ (whereμ is a scalar) is

A. $\sin^{-1}\left(\frac{15}{21}\right)$

B. $\cos^{-1}\left(\frac{16}{21}\right)$

C. $\sin^{-1}\left(\frac{16}{21}\right)$

D. $\frac{\pi}{2}$

Answer: C

Watch Video Solution

6. The angle between the line $\frac{x}{2} = \frac{y}{3} = \frac{z}{4}$ and the plane 3 x + 2y -3z =4 is

A. 45°

B. 0°

C. $\cos^{-1}\left(\frac{24}{\sqrt{29}\sqrt{22}}\right)$

D. 90°

Answer: B

Watch Video Solution

Watch Video Solution

7. The angle between two planes $x + 2y + 2z = 3$ and $-5x + 3y + 4z = 9$ is (A) $\frac{\cos^{-1}\left(3\sqrt{2}\right)}{10}$ (B) $\frac{\cos^{-1}\left(19\sqrt{2}\right)}{30}$ (C) $\frac{\cos^{-1}\left(9\sqrt{2}\right)}{20}$ (D) $\frac{\cos^{-1}\left(3\sqrt{2}\right)}{5}$

A. $\cos^{-1}\frac{9\sqrt{2}}{20}$

B. $\cos^{-1}\frac{3\sqrt{2}}{5}$

C. $\cos^{-1}\frac{3\sqrt{2}}{10}$

D. $\cos^{-1}\frac{19\sqrt{2}}{30}$

Answer: C

Watch Video Solution

8. Let L be the line of intersection of the planes $2x + 3y + z = 1$ and $x + 3y + 2z = 2$. If L makes an angles $\alpha$with the positive x-axis, then

$\cos\alpha$ equals $\frac{1}{\sqrt{3}}\ \frac{1}{2}\ 1\ \frac{1}{\sqrt{2}}$

A. $\frac{1}{\sqrt{3}}$

B. $\frac{1}{2}$

C. 1

D. $\frac{1}{\sqrt{2}}$

Answer: A

Watch Video Solution

9. If θ is the angel between the planes $2x - y + z - 1 = 0$ and $x - 2y + z + 2 = 0$ then $\cos\theta = (A)2/3$ $(B)3/4(C)4/5(D)5/6$`

A. $2/3$

B. $3/4$

C. $4/5$

D. $5/6$

Answer: D

Watch Video Solution

10. If the planes $x + 2y + kz = 0$ and $2x + y - 2z = 0$, are at right angles, then the value of k is

A. 2

B. -2

C. $\frac{1}{2}$

D. $-\frac{1}{2}$

Answer: A

Watch Video Solution

11. Find the angle between the line $\frac{x+1}{2} = \frac{y}{3} = \frac{z-3}{6}$ and the plane $10x + 2y11z = 3$.

A. $\frac{\pi}{2}$

B. $\frac{\pi}{4}$

C. $\frac{\pi}{6}$

D. $\sin^{-1}\left(\frac{8}{21}\right)$

Answer: D

Watch Video Solution

12. If a,b and c are three unit vectors equally inclined to each other at angle θ. Then, angle between a and the plane of b and c is

A. $\cos^{-1}\left(\frac{\cos\theta}{\cos(\theta/2)}\right)$

B. $\sin^{-1}\left(\frac{\sin\theta}{\sin(\theta/2)}\right)$

C. $\sin^{-1}\left(\frac{\cos\theta}{\cos(\theta/2)}\right)$

D. $\cos^{-1}\left(\frac{\sin\theta}{\sin(\theta/2)}\right)$

Answer: A

Watch Video Solution

13. The angle between the line $r = \left(\hat{i} + 2\hat{j} - \hat{k}\right) + \lambda\left(\hat{i} - \hat{j} + \hat{k}\right)$ and the plane $r \cdot \left(2\hat{i} - \hat{j} + \hat{k}\right) = 4$ is

A. 0

B. $\frac{\pi}{2}$

C. π

D. None of these

Answer: D

Watch Video Solution

Practice Exercise Exercise 1 Topical Problems Coplanarity Of Two Lines And Distance Of A Point From A Plane

1. The distance of the plane $6x - 3y + 2z - 14 = 0$ from the origin is

A. 2

B. 1

C. 14

D. 8

Answer: A

Watch Video Solution

2. The distance of a plane $Ax + By + Cz = D$ from the point (x_1, y_1, z_1) is

A. $|Ax_1 + By_1 + Cz_1 - D|$

B. $\left|\frac{Ax_1 + By_1 + Cz_1 - D}{A^2 + B^2 + C^2}\right|$

C. $\left|\frac{Ax_1 + By_1 + Cz_1 - D}{\sqrt{A^2 + B^2 + C^2}}\right|$

D. $\left|\frac{Ax_1 + By_1 + Cz_1}{\sqrt{A^2 + B^2 + C^2}}\right|$

Answer: C

Watch Video Solution

3. If the distance of the point $P(1, -2, 1)$ from the plane $x + 2y - 2z = \alpha, where \alpha > 0, is 5,$ then the foot of the perpendicular from P to the place is a. $\left(\frac{8}{3}, \frac{4}{3}, -\frac{7}{3}\right)$ b. $\left(\frac{4}{3}, -\frac{4}{3}, \frac{1}{3}\right)$ c. $\left(\frac{1}{3}, \frac{2}{3}, \frac{10}{3}\right)$ d. $\left(\frac{2}{3}, -\frac{1}{3}, -\frac{5}{3}\right)$

A. $\left(\frac{8}{3}, \frac{4}{3} - \frac{7}{3}\right)$

B. $\left(\frac{4}{3}, -\frac{4}{3}, \frac{1}{3}\right)$

C. $\left(\frac{1}{3}, \frac{2}{3}, \frac{10}{3}\right)$

D. $\left(\frac{2}{3}, -\frac{1}{3}, \frac{5}{2}\right)$

Answer: A

Watch Video Solution

4. If the foot of the perpendicular from $O(0, 0, 0)$ to a plane is $P(1, 2, 2)$. Then the equation of the plane is

A. $-x + 2y + 8z - 9 = 0$

B. $x + 2y + 2z - 9 = 0$

C. $x + y + z - 5 = 0$

D. $x + 2y - 3z + 1 = 0$

Answer: B

Watch Video Solution

5. If (2,-1,3) is the foot of the perpendicular down from the origin to the plane, then the equation of the plane is

A. $2x + y - 3z + 6 = 0$

B. $2x - y + 3z - 14 = 0$

C. $2x - y + 3z - 13 = 0$

D. $2x + y + 3z - 10 = 0$

Answer: B

Watch Video Solution

6. let Q be the foot of perpendicular from the origin to the plane $4x - 3y + z + 13 = 0$ and R be a point $(- 1, 1, - 6)$ on the plane then length QR is

A. $\sqrt{14}$

B. $\sqrt{\frac{19}{2}}$

C. $3\sqrt{\frac{7}{2}}$

D. $\frac{3}{\sqrt{2}}$

Answer: C

Watch Video Solution

7. The distance of the point (1,-5,9) from the plane x-y+z = 5 measured along the line x = y = z is

A. $3\sqrt{5}$

B. $10\sqrt{3}$

C. $5\sqrt{3}$

D. $3\sqrt{10}$

Answer: B

Watch Video Solution

Watch Video Solution

8. If the straight lines x 1 y 1 z 2 k 2 and x 1 y 1 z 5 2 k are coplanar, then the plane (s) containing these two lines is (are) (A) y + 2z = 1 (B) y + z = 1 (C) y z = 1 (D) y 2z = 1 55

A. $y + 2z = 1$

B. $y + z = -1$

C. $y - z = -1$

D. $y - 2z = -1$

Answer: B

Watch Video Solution

9. If the straighat lines $x = 1 + s, y = -3 - \lambda s, z = 1 + \lambda s$ and $x = \frac{t}{2}, y = 1 + t, z = 2 - t$

with parameters s and t respectively, are coplanar, then λ equals (A) $-\frac{1}{2}$ (B) -1 (C) -2 (D) 0

A. $\frac{-1}{2}$

B. -1

C. -2

D. 0

Answer: C

Watch Video Solution

10. Show that the lines $\frac{x+1}{-3}=\frac{y-3}{2}=\frac{z+2}{1}$ and $\frac{x}{1}=\frac{y-7}{-3}=\frac{z+7}{2}$ are coplanar. Find the equation of the plane containing these lines.

A. $x-2y+z+7=0$

B. $x+2y-z+7=0$

C. $x + y + z = 0$

D. $x + 2y + z = 7$

Answer: C

Watch Video Solution

11. If the lines $\frac{x+1}{2} = \frac{y-1}{1} = \frac{z+1}{3}$ and $\frac{x+2}{2} = \frac{y-k}{3} = \frac{z}{4}$ are coplanar, then the value of k is

A. $\frac{11}{2}$

B. $-\frac{11}{2}$

C. $\frac{9}{2}$

D. $-\frac{9}{2}$

Answer: A

Watch Video Solution

12. Find the shortest distance between the lines $\frac{x-1}{2}=\frac{y-2}{3}=\frac{z-3}{4} and \frac{x-2}{3}=\frac{y-4}{4}=\frac{z-5}{5}$.

A. $x-2y+z=0$

B. $x-2y+z+7=0$

C. $x+y+z=0$

D. $x+y+z=9$

Answer: A

Watch Video Solution

13. Find the equation of a plane which passes through the point (3, 2, 0) and contains the line $\frac{x-3}{1}=\frac{y-6}{5}=\frac{z-4}{4}$.

A. (0,3,1)

B. (0,7,-10)

C. (0,-2,1)

D. (0,7,-10)

Answer: D

Watch Video Solution

14. If the lines $\frac{x-2}{1}=\frac{y-3}{1}\Big)\frac{z-4}{-k}$ and $\frac{x-1}{k}=\frac{y-4}{2}=\frac{z-5}{1}$ are coplanar then k can have (A) exactly two values (B) exactly thre values (C) any value (D) exactly one value

A. any value

B. exactly one value

C. exactly two values

D. exactly three values

Answer: C

Watch Video Solution

15. The coordinate of the foot of perpendicular drawn from origin to a plane is (2,4,-3). The equation of the plane is

A. $2x - 4y - 3z = 29$

B. $2x - 4y + 3z = 29$

C. $2x + 4y - 3z = 29$

D. None of these

Answer: C

Watch Video Solution

16. Let a plane passes through the point P(-1,-1,1) and also passes through a line joinning the points Q(0,1,1) and R(0,0,2). Then the distance of plane from the point (0,0,0) is

A. 3

B. 0

C. $\frac{1}{\sqrt{6}}$

D. $\frac{2}{\sqrt{6}}$

Answer: D

Watch Video Solution

Practice Exercise Exercise 2 Miscellaneous Problems

1. The equation of the plane through the point (1,2,-3) which is parallel to the plane $3x - 5y + 2z = 11$ is given by (A) $3x - 5y + 2z - 13 = 0$ (B) $5x - 3y + 2z + 13 = 0$ (C) $3x - 2y + 5z + 13 = 0$ (D) $3x - 5y + 2z + 13 = 0$

A. $3x - 5y + 2z - 13 = 0$

B. $5x - 3y + 2z + 13 = 0$

C. $3x - 2y + 5z + 13 = 0$

D. $3x - 5y + 2z + 13 = 0$

Answer: D

Watch Video Solution

2. The equation of a plane containning the lines $r = a_1 + \mathrm{t}\, \mathrm{b}_1$ and $r = a_2 + \mathrm{t}\, \mathrm{b}_2$, where $[(a_2 - a_1)b_1 b_2] = 0$ is

A. $[(r + a_1) \cdot (b_1 \times b_2)] = 1$

B. $[(r - b_1) \cdot a \cdot (b_1 \times b_2)] = 0$

C. $[(r - a_1) \cdot (b_1 \times b_2)] = 0$

D. None of these

Answer: C

Watch Video Solution

3. If a plane, intercepts on the coordinates axes at 8,4,4 then the length of the perpendicular from the origin to the plane is

A. $\frac{8}{3}$

B. $\frac{3}{8}$

C. 3

D. $\frac{4}{3}$

Answer: A

Watch Video Solution

4. Find the distance between the parallel planes $x + 2y - 2z + 1 = 0 and 2x + 4y - 4z + 5 = 0.$

A. 1

B. $1/2$

C. 2

D. 0

Answer: B

Watch Video Solution

5. Find the angle between the planes $\vec{r}\cdot(2\hat{i}-\hat{j}+\hat{k})=6 and \vec{r}\cdot(\hat{i}+\hat{j}+2\hat{k})=5.$

A. $\frac{\pi}{2}$

B. $\frac{\pi}{4}$

C. π

D. $\frac{\pi}{3}$

Answer: D

Watch Video Solution

6. The distance of the point (2,1,0) from the plane 2x+y+2z+5=0

A. 10 units

B. $\frac{10}{3}$ units

C. $\frac{10}{9}$ units

D. None of these

Answer: B

Watch Video Solution

7. If the planes $2x + y - 2z = 0$ and $x + 2y + kz = 0$ are at right angles, then the value of k is

A. 2

B. -2

C. $\frac{1}{2}$

D. $-\frac{1}{2}$

Answer: A

Watch Video Solution

8. The plane $2x + 3y + 4z = 1$ meets the coordinate axis in A, B, C. The centroid of the ΔABC is

A. $(2, 3, 4)$

B. $\left(\frac{1}{2}, \frac{1}{3}, \frac{1}{4}\right)$

C. $\left(\frac{1}{6}, \frac{1}{9}, \frac{1}{12}\right)$

D. $\left(\frac{1}{2}, \frac{3}{3}, \frac{3}{4}\right)$

Answer: C

Watch Video Solution

9. Equation of the plane parallel to the planes

$x + 2y + 3z - 5 = 0, \quad x + 2y + 3z - 7 = 0$ and equidistant from them is

A. $x + 2y + 3z - 6 = 0$

B. $x + 2y + 3z - 1 = 0$

C. $x + 2y + 3z - 8 = 0$

D. $x + 2y + 3z - 3 = 0$

Answer: A

Watch Video Solution

10. The image of the point (1,2,3) by the plane, x+y+z+3=0 is

A. $(-5, 4, -3)$

B. $(-5, -4, -3)$

C. $(5, -4, 3)$

D. $(5, 4, 3)$

Answer: B

Watch Video Solution

11. The plane through the point (-1,-1,-1) and containing the of intersection of the planes $r \cdot \left(\hat{i} + 3\hat{j} - \hat{k}\right) = 0$ and $r \cdot \left(\hat{j} + 2\hat{k}\right) = 0$ is

A. $r \cdot \left(\hat{i} + 2\hat{j} - 3\hat{k}\right) = 0$

B. $r \cdot \left(\hat{i} + 4\hat{j} + \hat{k}\right) = 0$

C. $r \cdot \left(\hat{i} + 5\hat{j} - 5\hat{k}\right) = 0$

D. $r \cdot \left(\hat{i} + \hat{j} + 3\hat{k}\right) = 0$

Answer: A

Watch Video Solution

12. the equation of a plane through the line of intersection the planes $x + 2y = 3, y - 2z + 1 = 0$ and perpendicular to the first plane is:

A. $2x - y - 10z = 9$

B. $2x - y + 7z = 11$

C. $2x - y + 10z = 11$

D. $2x - y - 9z = 10$

Answer: C

Watch Video Solution

13. The equation of the plane perpendicular to the line $\frac{x-1}{1} = \frac{y-2}{-1} = \frac{z+1}{2}$ and passing through the point (2,3,1), is

A. $r \cdot \left(\hat{i} + \hat{j} + 2\hat{k}\right) = 1$

B. $r \cdot \left(\hat{i} - \hat{j} + 2\hat{k}\right) = 1$

C. $r \cdot \left(\hat{i} - \hat{j} + 2\hat{k}\right) = 7$

D. $r \cdot \left(\hat{i} + \hat{j} - 2\hat{k}\right) = 10$

Answer: B

Watch Video Solution

14. The equation of the plane which makes with coordinate axes, a triangle witih centroid (α, β, γ) is given by

A. $\alpha x + \beta y + \gamma z = 3$

B. $\alpha x + \beta y + \gamma z = 1$

C. $\frac{x}{\alpha} + \frac{y}{\beta} + \frac{z}{\gamma} = 3$

D. $\frac{x}{\alpha} + \frac{y}{\beta} + \frac{z}{\gamma} = 1$

Answer: C

Watch Video Solution

Watch Video Solution

15. The equation of the plane containing the line $2x - 5y + z = 3; x + y + 4z = 5$, and parallel to the plane, $x + 3y + 6z = 1$, is : (1) $2x + 6y + 12z = 13$ (2) $x + 3y + 6z = -7$ (3) $x + 3y + 6z = 7$ (4) $2x + 6y + 12z = -13$

A. $2x + 6y + 12z = 13$

B. $x + 3y + 6z = -7$

C. $x + 3y + 6z = 7$

D. $2x + 6y + 12z = -13$

Answer: C

Watch Video Solution

16. The angle between $r = (1 + 2\mu)\hat{i} + (2 + \mu)\hat{j} + (2\mu - 1)\hat{k}$ and the plane $3x - 2y + 6x = 0$ (where, μ is a scalar) is

A. $\sin^{-1}\left(\frac{15}{21}\right)$

B. $\cos^{-1}\left(\frac{16}{21}\right)$

C. $\sin^{-1}\left(\frac{16}{21}\right)$

D. $\frac{\pi}{2}$

Answer: C

Watch Video Solution

17. An equation of a plane parallel to the plane $x - 2y + 2z - 5 = 0$ and at a unit distance from the origin is

A. $x - 2y + 2z - 3 = 0$

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

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

D. $x - 2y + 2z + 5 = 0$

Answer: A

Watch Video Solution

18. If the angle between the line $x\frac{y-1}{2}=\frac{z-3}{\lambda}$ and the plane $x+2y+3z=4$ is $\cos^{-1}\left(\sqrt{\frac{5}{14}}\right), then\lambda=$ (A) $\frac{2}{5}$ (B) $\frac{5}{3}$ (C) $\frac{2}{3}$ (D) $\frac{3}{2}$

A. $\frac{3}{2}$

B. $\frac{2}{5}$

C. $\frac{5}{3}$

D. $\frac{2}{3}$

Answer: D

Watch Video Solution

19. Let the line $\frac{x-2}{3}=\frac{y-1}{-5}=\frac{z+2}{2}$ lie in the plane $x+3y-\alpha z+\beta=0. Then (\alpha, \beta) equals (A) (6,-17) (B) (-6,7) (C) (5,15)$ (D)(-5,5)`

A. (6,-17)

B. (-6,7)

C. (5,-15)

D. (-5,15)

Answer: B

Watch Video Solution

20. A variable plane $\frac{x}{a}+\frac{y}{b}+\frac{z}{c}=1$ at a unit distance from origin cuts the coordinate axes at A, B and C. Centroid (x, y, z) satisfies the equation $\frac{1}{x^2}+\frac{1}{y^2}+\frac{1}{z^2}=K$. The value of K is (A) 9 (B) 3 (C) $\frac{1}{9}$ (D) $\frac{1}{3}$

A. 9

B. 3

C. $1/9$

D. $1/3$

Answer: A

Watch Video Solution

21. A variable plane moves so that the sum of the reciprocals of its intercepts on the coordinate axes is $(1/2)$. Then, the plane passes through the point

A. $\left(\frac{1}{2}, \frac{1}{2}, -\frac{1}{2}\right)$

B. $(-1, 1, 1)$

C. $(2, 2, 2)$

D. $(0, 0, 0)$

Answer: C

Watch Video Solution

22. Let L be the line of intersection of the planes $2x + 3y + z = 1$ and $x + 3y + 2z = 2$. If L makes an angles $\alpha$with the positive x-axis, then $\cos\alpha$ equals $\frac{1}{\sqrt{3}}$ $\frac{1}{2}$ 1 $\frac{1}{\sqrt{2}}$

A. $1/\sqrt{3}$

B. $1/2$

C. 1

D. $1/\sqrt{2}$

Answer: A

Watch Video Solution

23. The equation of the plane passing through the line of intersection of the planes $x + y + z = 6$ and $2x + 3y + 4z + 5 = 0$ and perpendicular to the plane $4x + 5y - 3z = 8$ is

A. $x + 7y + 13z - 96 = 0$

B. $x + 7y + 13z + 96 = 0$

C. $x + 7y - 13z - 96 = 0$

D. $x - 7y + 13z + 96 = 0$

Answer: B

Watch Video Solution

24. Foot of perpendicular drawn from the origin to the plane $2x - 3y + 4z = 29$ is

A. $(7, -1, 3)$

B. $(5-1,4)$

C. $(5,\ -2,3)$

D. $(2,\ -3,4)$

Answer: D

Watch Video Solution

25. A plane makes intercepts $-6,3,4$ upon the coordinate axes. Then, the length of the perpendicular from the origin on it is

A. $\frac{2}{\sqrt{29}}$

B. $\frac{3}{\sqrt{29}}$

C. $\frac{4}{\sqrt{29}}$

D. $\frac{12}{\sqrt{29}}$

Answer: D

Watch Video Solution

Watch Video Solution

26. The equation of the plane through the line of intersection of the planes $ax + by + cz + d = 0$ and $a'x + b'y + c'z + d' = 0$ parallel to the line $y = 0$ and $z = 0$ is

A. $Pa - P'a' = 0$

B. $P/a + P'/a' = 0$

C. $Pa + P'a' = 0$

D. $P/a = P'/a'$

Answer: D

Watch Video Solution

27. If the axes are rectangular and P is the point (2, 3, -1), find the equation of the plane through P at right angle to OP.

A. $2x + 3y + z = 14$

B. $2x + 3y - z = 14$

C. $2x - 3y + z = 14$

D. None of these

Answer: B

Watch Video Solution

28. The equation of a plane through the point $(2, 3, 1)$ and $(4, -5, 3)$ and parallel to x-axis

A. $x - z - 1 = 0$

B. $4x + y - 11 = 0$

C. $y + 4z - 7 = 0$

D. None of these

Answer: C

Watch Video Solution

29. Find the vector equation of the plane passing through the intersection of the planes $\rightarrow r\hat{i} + \dot{\hat{j}} + \hat{k} = 6$and $\rightarrow r2\hat{i} + 3\dot{\hat{j}} + 4\hat{k} = -5$and the point (1, 1, 1).

A. $r \cdot \left(3\hat{i} + 4\hat{j} + 5\hat{k}\right) = 1$

B. $r \cdot \left(8\hat{i} + 5\hat{j} + 2\hat{k}\right) = 99$

C. $r \cdot \left(20\hat{i} + 23\hat{j} + 26\hat{k}\right) = 69$

D. $r \cdot \left(-20\hat{i} - 23\hat{j} - 26\hat{k}\right) = 69$

Answer: C

Watch Video Solution

30. Find the vector equation of the plane passing thrugh the points (2,5,-3),(-2,-3,5),(5,3,-3).

A. $\left[r-\left(2\hat{i}+5\hat{j}-3\hat{k}\right)\right]\cdot\left(-4\hat{i}-8\hat{j}+8\hat{k}\right)=0$

B. $\left[r-\left(2\hat{i}+5\hat{j}-3\hat{k}\right)\right]\cdot\left(3\hat{i}-2\hat{j}\right)=0$

C. $\left[r-\left(2\hat{i}+5\hat{j}-3\hat{k}\right)\right]\cdot\left(16\hat{i}+24\hat{j}+32\hat{k}\right)=0$

D. None of the above

Answer: C

Watch Video Solution

31. Find the equation of the plane which bisects the line segment joining the points $A(2,3,4) and B(4,5,8)$ at right angles.

A. $r-\left(3\hat{i}+4\hat{j}+6\hat{k}\right)=\left(2\hat{i}+2\hat{j}+4\hat{k}\right)$

B. $r-\left(2\hat{i}+2\hat{j}+4\hat{k}\right)=\left(3\hat{i}+4\hat{j}+6\hat{k}\right)$

C. $\left[r-\left(3\hat{i}+4\hat{j}+6\hat{k}\right)\right]\cdot\left(2\hat{i}+2\hat{j}+4\hat{k}\right)=0$

D. $\left[r-\left(2\hat{i}+2\hat{j}+4\hat{k}\right)\cdot\left(3\hat{i}+4\hat{j}+6\hat{k}\right)\right]=0$

Answer: C

Watch Video Solution

32. The equation of the plane through the intersection of the planes $x+y+z=1$ and $2x+3y-z+4=0$ and parallel to x-axis is

A. $y-3z-6=0$

B. $y-3z+6-0$

C. $y-z-1=0$

D. $y-z+1=0$

Answer: B

Watch Video Solution

33. Find the equation of the plane passing through the line intersection of the plane: $\overrightarrow{2}x - y = 0$ and $3z - y = 0$ and perpendicular to the plane $4x + 5y - 3z = 8$

A. $28x - 17y + 9z = 0$

B. $28x + 17y + 9z = 0$

C. $28x - 17 - 9z = 0$

D. $7x - 3y + z = 0$

Answer: A

Watch Video Solution

34. The image of the point with position vector $\hat{i} + 3\hat{k}$ in the plane $r \cdot \left(\hat{i} + \hat{j} + \hat{k}\right) = 1$ is

A. $\hat{i} + 2\hat{j} + \hat{k}$

B. $\hat{i} + 2\hat{j} - \hat{k}$

C. $-\hat{i} - 2\hat{j} + \hat{k}$

D. $\hat{i} - 2\hat{j} + \hat{k}$

Answer: C

Watch Video Solution

35. The equation of the plane through the point (2,5,-3) and perpendicular to the planes $x + 2y + 2z = 1$ and $x - 2y + 3z = 4$ is

A. $3x - 4y + 2z - 2 = 0$

B. $7x - y + 5z = 30$

C. $x - 2y + z = 11$

D. $10x - y - 4z = 27$

Answer: D

Watch Video Solution

36. The equation of the plane passing through the intersection of the planes $2x - 5y + z = 3$ and $x + y + 4z = 5$ and parallel to the plane $x + 3y + 6z = 1$ is $x + 3y + 6z = k$, where k is

A. 5

B. 3

C. 7

D. 2

Answer: C

Watch Video Solution

37. The equation of the plane through the point (0,-4,-6) and (-2,9,3) and perpendicular to the plane $x - 4y - 2z = 8$ is

A. $3x + 3y - 2z = 0$

B. $x - 2y + z = 2$

C. $2x + y - z = 2$

D. $5x - 3y + 2z = 0$

Answer: C

Watch Video Solution

38. A plane meets the coordinate axes in A,B,C such that the centroid of triangle ABC is the point (p, q, r). If the equation of the plane is $\frac{x}{p} + \frac{y}{q} + \frac{z}{r} = k$ then $k =$

A. 3

B. 2

C. 1

D. 5

Answer: A

Watch Video Solution

39. A plane passes through (1,-2,1) and is perpendicualr to two planes $2x - 2y + z = 0$ and $x - y + 2z = 4$, then the distance of the plane from the point (1,2,2) is

A. 0

B. 1

C. $\sqrt{2}$

D. $2\sqrt{2}$

Answer: D

Watch Video Solution

40. The plane $2x - 3y + 6z - 11 = 0$ makes an angle $\sin^{-1}(\alpha)$ with X-axis. The value of α is

A. $\frac{\sqrt{3}}{2}$

B. $\frac{\sqrt{2}}{3}$

C. $\frac{2}{7}$

D. $\frac{3}{7}$

Answer: C

Watch Video Solution

41. If the plane $x + y + z = 1$ is rotated through 90° about its line of intersection with the plane $x - 2y + 3z = 0,$ the new position of the plane is

A. $x - 5y + 4z = 1$

B. $x - 5y + 4z = -1$

C. $x - 8y + 7z = 2$

D. $x - 8y + 7z = -2$

Answer: D

Watch Video Solution

42. A plane passes through the point (1,-2,3) and is parallel to the plane $2x - 2y + z = 0$. The distance of the point (-1,2,0) from the plane, is

A. 2

B. 3

C. 4

D. 5

Answer: D

Watch Video Solution

Watch Video Solution

43. The vector equation of plane which is at a distance of 8 unit from the origin and which is normal to the vector $2\hat{i}+\hat{j}+2\hat{k}$ is $r\cdot\left(2\hat{i}+\hat{j}+2\hat{k}\right)=\lambda$, where λ is equal to

A. 0

B. 24

C. 42

D. 8

Answer: B

Watch Video Solution

44. Find the equation of a plane containing the line of intersection of the planes $x+y+z-6=0and2x+3y+4z+5=0$ passing through $(1,1,1)$.

A. $20x + 23y + 26z = 0$

B. $20x + 23y + 26z + 69 = 0$

C. $20x + 23y + 26z - 69 = 0$

D. None of the above

Answer: C

Watch Video Solution

Mht Cet Corner

1. The acute angle between the line $r = \left(\hat{i} + 2\hat{j} + \hat{k}\right) + \lambda\left(\hat{i} + \hat{j} + \hat{k}\right)$ and the plane $r \cdot \left(2\hat{i} + \hat{j} + \hat{k}\right) = 5$

A. $\cos^{-1}\left(\frac{\sqrt{2}}{3}\right)$

B. $\sin^{-1}\left(\frac{\sqrt{2}}{3}\right)$

C. $\tan^{-1}\left(\frac{\sqrt{2}}{3}\right)$

D. $\sin^{-1}\left(\frac{\sqrt{2}}{\sqrt{3}}\right)$

Answer: B

Watch Video Solution

2. If A and B are foot of perpendicular drawn from point Q(a,b,c) to the planes yz and zx, then equation of plane through the point A,B, and O is

A. $\frac{x}{a}+\frac{y}{b}-\frac{z}{c}=0$

B. $\frac{x}{a}-\frac{y}{b}+\frac{z}{c}=0$

C. $\frac{x}{a}-\frac{y}{b}-\frac{z}{c}=0$

D. $\frac{x}{a}+\frac{y}{b}+\frac{z}{c}=0$

Answer: A

Watch Video Solution

3. If line joining points A and B having position vectors $6\bar{a} - 4\bar{b} + 4\bar{c}$ and $-4\bar{c}$ respectively, and the line joining the points C and D having position vectors $-\bar{a} - 2\bar{b} - 3\bar{c}$ and $\bar{a} + 2\bar{b} - 5\bar{c}$ intersect, then their point of intersection is (A) B (B) C (C) D (D) A

A. B

B. C

C. D

D. A

Answer: A

Watch Video Solution

4. If a plane meets the coordinates axes at A, Band C, in such a way that the centroid of ΔABC is at the point $(1, 2, 3)$, the equation of the

plane is

A. $x + \frac{y}{2} + \frac{z}{2} = 1$

B. $\frac{x}{3} + \frac{y}{6} + \frac{z}{9} = 1$

C. $x + 2y + 3z = 1$

D. None of these

Answer: B

Watch Video Solution

5. The equation of the plane which passes through (2,-3,1) and is normal to the line joining the points (3,4,-1) and (2,-1,5) is given by

A. $x + 5y - 6z + 19 = 0$

B. $x - 5y + 6z - 19 = 0$

C. $x + 5y + 6z + 19 = 0$

D. $x - 5y - 6z - 19 = 0$

Answer: A

Watch Video Solution

6. Find the point where the line $\frac{x-1}{2} = \frac{y-2}{-3} = \frac{z+3}{4}$ meets the plane $2x + 4y - z = 1$.

A. $(3, -1, 1)$

B. $(3, 1, 1)$

C. $(1, 1, 3)$

D. $(1, 3, 1)$

Answer: A

Watch Video Solution

7. Equation of the plane passing through (-2,2,2) and (2,-2,-2) and perpendicular to the plane 9x-13y-3z=0 is

A. $5x + 3y + 2z = 0$

B. $5x - 3y + 2z = 0$

C. $5x - 3y - 2z = 0$

D. $5x + 3y - 2z = 0$

Answer: A

Watch Video Solution

8. Find ten equation of the plane passing through the point $(0, 7, -7)$ and containing the line $\frac{x+1}{-3} = \frac{y-3}{2} = \frac{z+2}{1}$.

A. $x + y + z = 1$

B. $x + y + z = 2$

C. $x + y + z = 0$

D. None of these

Answer: C

Watch Video Solution

9. A unit vector in the plane of $\hat{i} + 2\hat{j} + \hat{k}$ and $\hat{i} + \hat{j} + 2\hat{k}$ and perpendicular to $2\hat{i} + \hat{j} + \hat{k}$, is

A. $\hat{j} - \hat{k}$

B. $\frac{\hat{i} + \hat{j}}{\sqrt{2}}$

C. $\frac{\hat{j} + \hat{k}}{\sqrt{2}}$

D. $\frac{\hat{j} - \hat{k}}{\sqrt{2}}$

Answer: D

Watch Video Solution