



MATHS

BOOKS CENGAGE MATHS (ENGLISH)

EQUATION OF STRAIGHT LINE AND ITS APPLICATION

Dpp 3 2

1. The ratio in which the plane $2x - 1 = 0$ divides the line joining $(-2, 4, 7)$ and

$(3, -5, 8)$ is

A. $2:3$

B. $4:5$

C. $7:8$

D. $1:1$

Answer: D



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2. A ray of light is sent through the point $P(1,2,3)$ and is reflected on the XY plane. If the reflected ray passes through the point $Q(3,2,5)$ then the equation of the reflected ray is

A. $\frac{x - 3}{1} = \frac{y - 2}{0} = \frac{z - 5}{1}$

B. $\frac{x - 3}{1} = \frac{y - 2}{0} = \frac{z - 5}{-4}$

C. $\frac{x - 3}{1} = \frac{y - 2}{0} = \frac{z - 5}{4}$

D. $\frac{x - 1}{1} = \frac{y - 2}{0} = \frac{z - 3}{4}$

Answer: C



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3. If lines $x = y = z$ and $x = \frac{y}{2} = \frac{z}{3}$ and third line passing through $(1, 1, 1)$ form a triangle of area $\sqrt{6}$ units, then the point of intersection of third line with the second line will be a. $(1, 2, 3)$ b. $2, 4, 6$ c. $\frac{4}{3}, \frac{6}{3}, \frac{12}{3}$ d. none of these

A. $\left(\frac{4}{3}, \frac{8}{3}, \frac{12}{3}\right)$

B. $(1, 2, 3)$

C. $(2, 4, 6)$

D. (3,6,9)

Answer: C



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4. A line with direction ratio $(2, 1, 2)$

intersects the lines

$$\vec{r} = -\hat{j} + \lambda(\hat{i} + \hat{j} + \hat{k}) \quad \text{and}$$

$$\vec{r} = -\hat{i} + \mu(2\hat{i} + \hat{j} + \hat{k}) \quad \text{at A and B,}$$

respectively then length of AB is equal to

A. 1

B. 2

C. 3

D. 4

Answer: C



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5. The centroid of the triangle formed by (0, 0,

0) and the point of intersection of

$$\frac{x - 1}{x} = \frac{y - 1}{2} = \frac{z - 1}{1} \text{ with } x = 0 \text{ and}$$

$y = 0$ is

A. $(1,1,1)$

B. $(1/6, -1/3, 1/6)$

C. $(-1/6, 1/3, -1/6)$

D. $(1/3, 1/3, 1/3)$

Answer: B



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6. The distance of the point having position vector $-\hat{i} + 2\hat{j} + 6\hat{k}$ from the straight line

passing through the point $(2, 3, -4)$ and parallel to the vector, $6\hat{i} + 3\hat{j} - 4\hat{k}$ is:

A. 6

B. 7

C. 8

D. 9

Answer: B



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7. If the line $\frac{x - 2}{-1} = \frac{y + 2}{1} = \frac{z + k}{4}$ is one of the angle bisector of the lines $\frac{x}{1} = \frac{y}{-2} = \frac{z}{3}$ and $\frac{x}{-2} = \frac{y}{3} = \frac{z}{1}$ then the value of k is

A. 1

B. 2

C. 4

D. 8

Answer: D



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8. A variable point P is on the circle $x^2 + y^2 = 1$ on xy plane. From point P , perpendicular PN is drawn to the line $x = y = z$ then the minimum length of PN is:-

A. $\sqrt{2}$

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

C. $\sqrt{3}$

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

Answer: D



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9. Which of the following is/are the points that is/are at a distance of 12 units from the point whose position vector is $(8\hat{i} + 10\hat{j} - 8\hat{k})$ on the line which is parallel to $(2\hat{i} + \hat{j} + 2\hat{k})$?

A. $16\hat{i} + 14\hat{j}$

B. $6\hat{j} - 16\hat{k}$

C. $(16\hat{i} + 18\hat{j} - 4\hat{k})$

D. none of these

Answer: A::B



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10. Three mutually perpendicular lines are drawn from the point $(1, 2, -1)$. If one of the lines is perpendicular to the x -axis and the direction ratios of the second line are $(1, 2, -1)$ then which are the possible equation(s) of the third line

A. $\vec{r} = 6\hat{i} + \lambda(5\hat{i} - 2\hat{j} + \hat{k})$

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

C. $\frac{x+4}{5} = \frac{y-4}{-2} = \frac{z+2}{1}$

D. none of these

Answer: A::C



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11. The lines $\frac{x-1}{1} = \frac{y+1}{-1} = \frac{z}{2}$ and $\frac{x}{2} = \frac{y-1}{-2} = \frac{z-1}{\lambda}$ are parallel if `

A. parallel if $\lambda = 4$

B. perpendicular if $\lambda = -1$

C. coplanar if $\lambda = 4$

D. skew lines $\lambda = 5$

Answer: A::B::C::D



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