



MATHS

BOOKS - PSEB

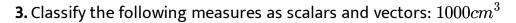
VECTOR ALGEBRA

Example

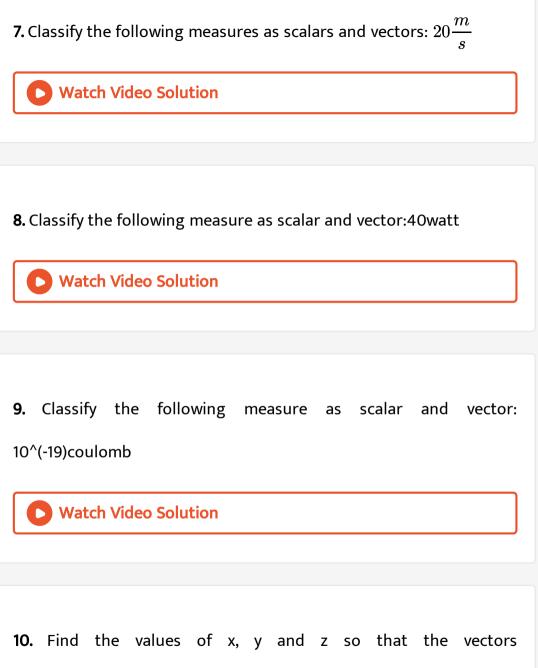
1. Represent graphically a displacement of 40 km, 30° west of south.

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2. Classify the following measures as scalars and vectors: 5s



Watch Video Solution **4.** Classify the following measures as scalars and vectors: 10NWatch Video Solution 5. Classify the following measures as scalars and vectors: $30k\frac{m}{h}$ Watch Video Solution **6.** Classify the following measures as scalars and vectors: $10rac{g}{2}m^3$ Watch Video Solution



$$\overrightarrow{a} = x \hat{i} + 2 \hat{j} + z \hat{k}$$
 and $\hat{b} = 2 \hat{i} + y \hat{j} + \hat{k}$ are equal.

11. Let
$$\overrightarrow{a} = \hat{i} + 2\hat{j}$$
 and $\overrightarrow{b} = 2\hat{i} + \hat{j}$. Is $|\overrightarrow{a}| = |\overrightarrow{b}|$? Are the vectors \overrightarrow{a} and \overrightarrow{b} equal?

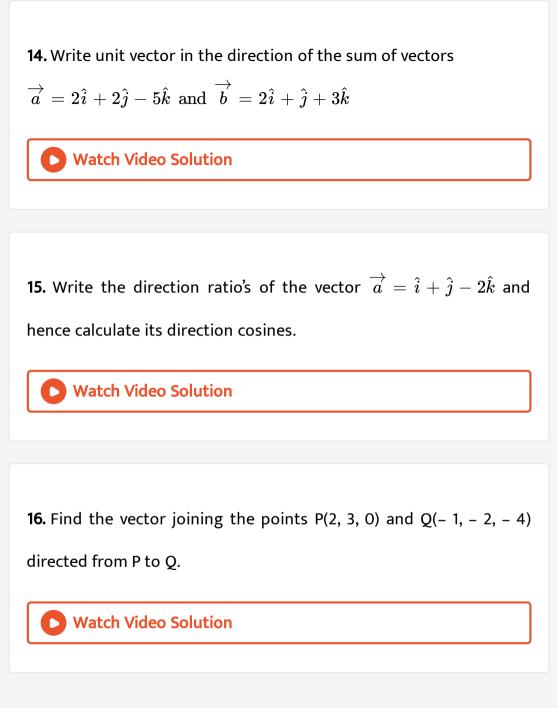
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12. Find the unit vector in the direction of the vector $ec{a}=\hat{i}+\hat{j}+\hat{k}$



13. Find the vector in the direction of the vector $\hat{i} - 2\hat{j}$ that has magnitude 7 units.

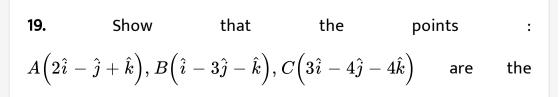




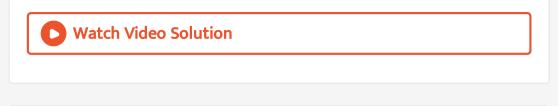
17. Consider two points P and Q with position vectors $\overrightarrow{OP} = 3\overrightarrow{a} - 2\overrightarrow{b}$ and $\overrightarrow{OQ} = \overrightarrow{a} + \overrightarrow{b}$. Find the position vector of a point R which divides the line joining P and Q in the ratio 2:1, internally.

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18. Consider two points P and Q with position vectors $\overrightarrow{OP} = 3\overrightarrow{a} - 2\overrightarrow{b}$ and $\overrightarrow{OQ} = \overrightarrow{a} + \overrightarrow{b}$. Find the position vector of a point R which divides the line joining P and Q in the ratio 2:1, externally.



vertices of a right-angled triangle.



20. Find the angle between two vectors \overrightarrow{a} and \overrightarrow{b} with magnitudes 1 and 2 respectively and when $\overrightarrow{a} \cdot \overrightarrow{b} = 1$.

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21. Find angle ' Θ ' between the vectors $\overrightarrow{a} = \overrightarrow{i} + \overrightarrow{j} - \overrightarrow{k}$ and $\overrightarrow{b} = \overrightarrow{i} - \overrightarrow{j} + \overrightarrow{k}$.

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22. If $\overrightarrow{a} = 5\overrightarrow{i} - \overrightarrow{j} - 3\overrightarrow{k}$ and $\overrightarrow{b} = \overrightarrow{i} + 3\overrightarrow{j} - 5\overrightarrow{k}$, then show that the vectors $\overrightarrow{a} + \overrightarrow{b}$ and $\overrightarrow{a} - \overrightarrow{b}$ are perpendicular.

23. Find the projection of the vector $\overrightarrow{a} = 2\overrightarrow{i} + 3\overrightarrow{j} + 2\overrightarrow{k}$ on the

vector
$$\overrightarrow{b}=\overrightarrow{i}+2\overrightarrow{j}+\overrightarrow{k}$$

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24. Find
$$\left|\overrightarrow{a} - \overrightarrow{b}\right|$$
, if two vectors \overrightarrow{a} and \overrightarrow{b} are such that $\left|\overrightarrow{a}\right| = 2$, $\left|\overrightarrow{b}\right| = 3$ and $\overrightarrow{a} \cdot \overrightarrow{b} = 4$.

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25. If
$$\overrightarrow{a}$$
 is a unit vector and $\left(\overrightarrow{x} - \overrightarrow{a}\right) \cdot \left(\overrightarrow{x} + \overrightarrow{a}\right) = 8$, then find $\left|\overrightarrow{x}\right|$

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26. For any two vectors \vec{a} and \vec{b} , prove that $\left|\vec{a} \cdot \vec{b}\right| \leq \left|\vec{a}\right| \left|\vec{b}\right|$ Also write the name of this inequality. **Vatch Video Solution** 27. For any two vectors \vec{a} and \vec{b} , prove that : $\left|\vec{a} + \vec{b}\right| \leq \left|\vec{a}\right| + \left|\vec{b}\right|$. Also, write the name of this inequality **Vatch Video Solution**

28. Show that the three points with position vectors $-2\hat{i}+3\hat{j}+5\hat{k}$

, $\hat{i}+2\hat{j}+3\hat{k}$ and $7\hat{i}-\hat{k}$ are collinear.



29. Find
$$\left| \overrightarrow{a} \times \overrightarrow{b} \right|$$
 if $\overrightarrow{a} = 2\overrightarrow{i} + \overrightarrow{j} + 3\overrightarrow{k}$ and $\overrightarrow{b} = 3\overrightarrow{i} + 5\overrightarrow{j} - 2\overrightarrow{k}$

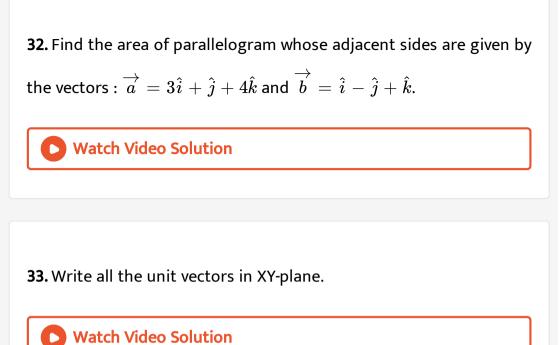
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30. Find a unit vector perpendicular to each of the vectors $\left(\overrightarrow{a} + \overrightarrow{b}\right)$ and $\left(\overrightarrow{a} - \overrightarrow{b}\right)$, where $\overrightarrow{a} = \overrightarrow{i} + \overrightarrow{j} + \overrightarrow{k}, \overrightarrow{b} = \overrightarrow{i} + 2\overrightarrow{j} + 3\overrightarrow{k}$

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31. Using vectors, find the area of the triangle having vertices A (1, 1,

1), B (1, 2, 3) and C (2, 3, 1).

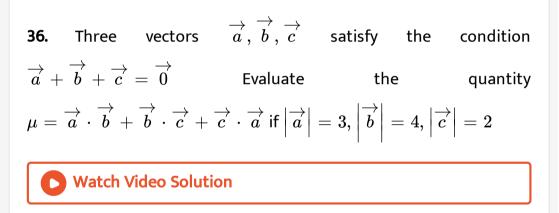


34. If $\hat{i} + \hat{j} + \hat{k}$, $2\hat{i} + 5\hat{j}$, $3\hat{i} + 2\hat{j} - 3\hat{k}$ and $\hat{i} - 6\hat{j} - \hat{k}$ are the position vectors of points A, B, C and D respectively, then find the angle between AB and CD. Deduce that AB and CD are collinear.



35. Let $\overrightarrow{a}, \overrightarrow{b}, \overrightarrow{c}$ be three vectors such that $\left|\overrightarrow{a}\right| = 3, \left|\overrightarrow{b}\right| = 4, \left|\overrightarrow{c}\right| = 5$ and each one of them being perpendicular to the sum of the other two, find $\left|\overrightarrow{a} + \overrightarrow{b} + \overrightarrow{c}\right|$

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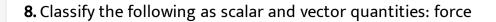


37. If with reference to the right handed system of mutually perpendicular unit vectors \hat{i} , \hat{j} , \hat{k} , $\overrightarrow{\alpha} = 3\hat{i} - \hat{j}$, $\overrightarrow{\beta} = 2\hat{i} + \hat{j} - 3\hat{k}$, then express $\overrightarrow{\beta}$ in the form $\overrightarrow{\beta} = \overrightarrow{\beta}_1 + \overrightarrow{\beta}_2$ where $\overrightarrow{\beta}_1$ is parallel to $\overrightarrow{\alpha}$ and $\overrightarrow{\beta}_2$ is perpendicular to $\overrightarrow{\alpha}$.



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Exercise
1. Represent graphically a displacement of 40 km, 30^o east of north.
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2. Classify the following measure as scalar and vector: $10Kg$
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3. Classify the following measure as scalar and vector: 2 <i>meters</i> north-west
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Watch Video Solution **9.** Classify the following as scalar and vector quantities: *velocity* Watch Video Solution 10. Classify the following as scalar and vector quantities:work done Watch Video Solution

11. Compute the magnitude of the following vectors: $ec{a} = \hat{i} + \hat{j} + \hat{k}$

12. Compute the magnitude of the following vectors: $\overrightarrow{b} = 2\overrightarrow{i} - 7\overrightarrow{j} - 3\overrightarrow{k}$ |

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13. Compute the magnitude of the following vectors: $\vec{c} = \left(\frac{1}{\sqrt{3}}\right) \vec{i} + \left(\frac{1}{\sqrt{3}}\right) \vec{j} - \left(\frac{1}{\sqrt{3}}\right) \vec{k}$

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14. Write two different vectors having same magnitude.



15. Write two different vectors having same direction.

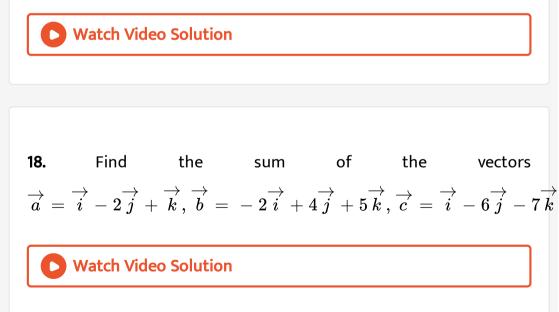


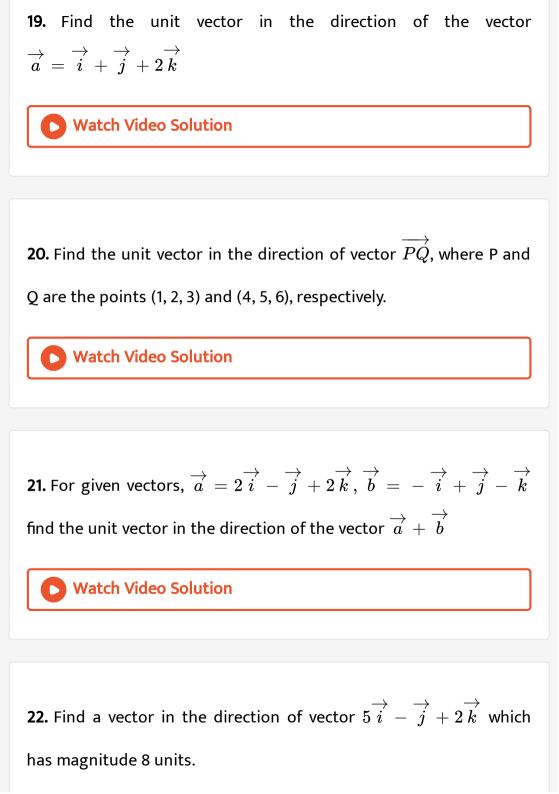
16. Find the values of x and y so that the vectors $2\vec{i} + 3\vec{j}$ and $x\vec{i} + y\vec{j}$ are equal.

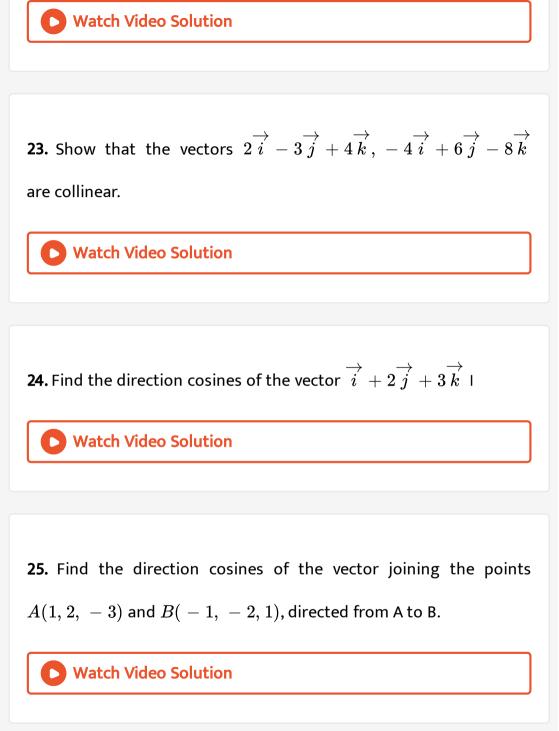
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17. Find the scalar and vector components of the vector with initial

point (2, 1) and terminal point (- 5, 7).







26. Show that the vector $\vec{i} + \vec{j} + \vec{k}$ is equally inclined to the axes OX, OY and OZ.

27. Find the position vector of a point R which divides the line joining two points P and Q whose position vectors are $P\left(\overrightarrow{i}+2\overrightarrow{j}-\overrightarrow{k}\right)$ and $Q\left(-\overrightarrow{i}+\overrightarrow{j}+\overrightarrow{k}\right)$ respectively, in the

ratio 2 : 1, internally.

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28. Find the position vector of a point R which divides the line joining two points P and Q whose position vectors are $P\left(\overrightarrow{i} + 2\overrightarrow{j} - \overrightarrow{k}\right)$ and $Q\left(-\overrightarrow{i} + \overrightarrow{j} + \overrightarrow{k}\right)$ respectively, in the ratio 2 : 1, externally.

29. Find the position vector of the mid point of the vector joining

the points P(2, 3, 4), Q(4, 1, -2)

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30. Show that the points A, B and C with position vectors, $\overrightarrow{a} = 3\overrightarrow{i} - 4\overrightarrow{j} - 4\overrightarrow{k}, \overrightarrow{b} = 2\overrightarrow{i} - \overrightarrow{j} + \overrightarrow{k}, \overrightarrow{c} = \overrightarrow{i} - 3\overrightarrow{j} - 5\overrightarrow{k}$

, respectively form the vertices of a right angled triangle.

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31. If \overrightarrow{a} and \overrightarrow{b} are two collinear vectors then which of the following are incorrect :

A.
$$\overrightarrow{b}=\lambda\overrightarrow{a}, f ext{ or } some scalar\lambda$$

 $\mathsf{B}.\,\overrightarrow{a}\,=\,\pm\,\overrightarrow{b}$

C. the respective components of \overrightarrow{a} and \overrightarrow{b} are proportional.

D. both the vectors \overrightarrow{a} and \overrightarrow{b} have same direction, but different

magnitudes.

Answer:

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32. Find the angle between two vectors \overrightarrow{a} and \overrightarrow{b} with magnitudes

$$\sqrt{3}$$
 and 2,respectively having $\overrightarrow{a}\cdot\overrightarrow{b}=\sqrt{6}$

33. Find the angle between the vectors
$$\vec{a} = \hat{i} - 2\hat{j} + 3\hat{k}$$
 and $\vec{b} = 3\hat{i} - 2\hat{j} - \hat{k}$

34. Find the projection of the vector $\hat{i}+\hat{j}$ on the vector $\hat{i}-\hat{j}$

35. Find the projection of the vector
$$\vec{i} + 3\vec{j} + 7\vec{k}$$
 on the vector $\vec{7}\vec{i} - \vec{j} + 8\vec{k}$

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36. Show that the given vector is a unit vector:
$$\left(\frac{1}{7}\right)\left(2\hat{i}+3\hat{j}+6\hat{k}\right)$$

37. Show that the given vector is a unit vector:
$$\left(\frac{1}{7}\right)\left(3\hat{i}-6\hat{j}+2\hat{k}\right)$$

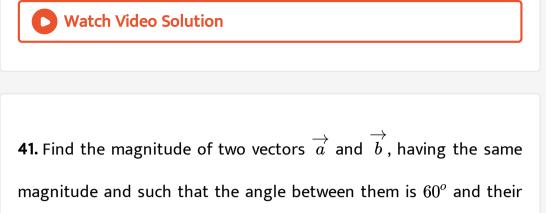
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38. Show that the given vector is a unit vector:

$$\left(\frac{1}{7}\right)\left(6\overrightarrow{i}+2\overrightarrow{j}-3\overrightarrow{k}\right)$$
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39. Find
$$\left| \overrightarrow{a} \right|$$
 and $\left| \overrightarrow{b} \right|$, if $\left(\overrightarrow{a} + \overrightarrow{b} \right) \cdot \left(\overrightarrow{a} - \overrightarrow{b} \right) = 8$ and $\left| \overrightarrow{a} \right| = 8 \left| \overrightarrow{b} \right|$.

40. Evaluate the product
$$\left(3\widehat{a}-5\widehat{b}
ight)\cdot\left(2\widehat{a}+7\widehat{b}
ight)$$



magnitude and such that the angle betw scalar product is $\frac{1}{2}$.

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42. Find
$$\left|\overrightarrow{x}\right|$$
, if for a unit vector \overrightarrow{a} , $\left(\overrightarrow{x} - \overrightarrow{a}\right) \cdot \left(\overrightarrow{x} + \overrightarrow{a}\right) = 12$

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43. If
$$\overrightarrow{a} = 2\overrightarrow{i} + 2\overrightarrow{j} + 3\overrightarrow{k}, \ \overrightarrow{b} = -\overrightarrow{i} + 2\overrightarrow{j} + \overrightarrow{k}$$
 and

 $\overrightarrow{c}=3\overrightarrow{i}+\overrightarrow{j}$ are such that $\overrightarrow{a}+\lambda\overrightarrow{b}$ is perpendicular to \overrightarrow{c} , then

find the value of λ

44. Show that
$$|\overrightarrow{a}|\overrightarrow{b} + |\overrightarrow{b}|\overrightarrow{a}$$
 is perpendicular to $|\overrightarrow{a}|\overrightarrow{b} - |\overrightarrow{b}|\overrightarrow{a}$ for any two non zero vectors \overrightarrow{a} and \overrightarrow{b}

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45. If
$$\overrightarrow{a} \cdot \overrightarrow{a} = 0$$
 and $\overrightarrow{a} \cdot \overrightarrow{a} b = 0$, then what can be concluded about the vector \overrightarrow{b} ?

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46. If
$$\overrightarrow{a}$$
, \overrightarrow{b} , \overrightarrow{c} are unit vectors such that $\overrightarrow{a} + \overrightarrow{b} + \overrightarrow{c} = 0$, find the value of $\overrightarrow{a} \cdot \overrightarrow{b} + \overrightarrow{b} \cdot \overrightarrow{c} + \overrightarrow{c} \cdot \overrightarrow{a}$

47. If either vector $\overrightarrow{a} = 0$ or $\overrightarrow{b} = 0$, then $\overrightarrow{a} \cdot \overrightarrow{b} = 0$.But the

converse need not be true. Justify your answer with an example.

48. If the vertices A, B, C of a triangle ABC are (1,2,3), (-1,0,0), (0,1,2) respectively, then find $\angle ABC$ [$\angle ABC$ is the angle between the vectors \overrightarrow{BA} and \overrightarrow{BC}]

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49. Show that the points A(1, 2, 7), B(2, 6, 3) ਅਤੇ C(3, 10, -1)

are collinear.

50. Show that the points
$$A\left(2\overrightarrow{i}-\overrightarrow{j}+\overrightarrow{k}\right), B\left(\overrightarrow{i}-3\overrightarrow{j}-5\overrightarrow{k}\right), C\left(3\overrightarrow{i}-4\overrightarrow{j}-4\overrightarrow{k}\right)$$

are the vertices of a right angled triangle.

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51. If \overrightarrow{a} is a nonzero vector of magnitude 'a' and λ a nonzero scalar, then $\lambda \overrightarrow{a}$ is unit vector if:

A.
$$\lambda = 1$$

B. $\lambda = -1$
C. $a = |\lambda|$

D.
$$a=rac{1}{|\lambda|}$$

Answer:

52. Find
$$\left| \overrightarrow{a} \times \overrightarrow{b} \right|$$
, if $\overrightarrow{a} = \overrightarrow{i} - 7\overrightarrow{j} + 7\overrightarrow{k}$ and $\overrightarrow{b} = 3\overrightarrow{i} - 2\overrightarrow{j} + 2\overrightarrow{k}$

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53. Find a unit vector perpendicular to each of the vector $\overrightarrow{a} + \overrightarrow{b}$ and $\overrightarrow{a} - \overrightarrow{b}$ where $\overrightarrow{a} = 3\overrightarrow{i} + 2\overrightarrow{j} + 2\overrightarrow{k}$ and $\overrightarrow{b} = \overrightarrow{i} + 2\overrightarrow{j} - 2\overrightarrow{k}$

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54. If a unit vector \overrightarrow{a} , makes angles $\frac{\pi}{3}$ with \hat{i} , $\frac{\pi}{4}$ wih \hat{j} and an acute angle θ with \hat{k} , then find θ and hence, the components of \overrightarrow{a} .

55. Show that
$$\left(\overrightarrow{a} - \overrightarrow{b}\right) \times \left(\overrightarrow{a} + \overrightarrow{b}\right) = 2\left(\overrightarrow{a} \times \overrightarrow{b}\right)$$

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56.
$$\lambda \quad \mu$$
 ਪਤਾ ਕਰੋ, ਜੇਕਰ
 $\left(2\overrightarrow{i} + 6\overrightarrow{j} + 27\overrightarrow{k}\right) \times \left(\overrightarrow{i} + \lambda\overrightarrow{j} + \mu\overrightarrow{k}\right) = \overrightarrow{0}$
Vatch Video Solution

57. Given that
$$\overrightarrow{a} \cdot \overrightarrow{b} = 0$$
 and $\overrightarrow{a} \times \overrightarrow{b} = \overrightarrow{0}$. What can you conclude about the vectors \overrightarrow{a} and \overrightarrow{b} ?

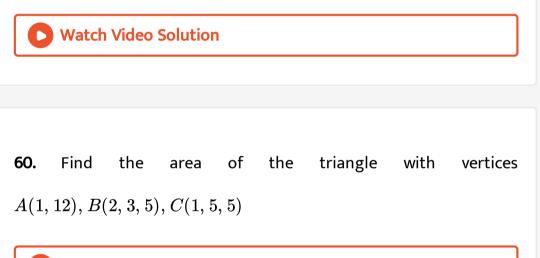
58. Let the vectors
$$\overrightarrow{a}, \overrightarrow{b}, \overrightarrow{c}$$
 be given as
 $\overrightarrow{a}_1\hat{i} + \overrightarrow{a}_2\hat{j} + \overrightarrow{a}_3\hat{k}, \overrightarrow{b}_1\hat{i} + \overrightarrow{b}_2\hat{j} + \overrightarrow{b}_3\hat{k}, \overrightarrow{c}_1\hat{i} + \overrightarrow{c}_2\hat{j} + \overrightarrow{c}_3\hat{k}$.

Then show that
$$\overrightarrow{a} \times \left(\overrightarrow{b} + \overrightarrow{c}\right) = \overrightarrow{a} \times \overrightarrow{b} + \overrightarrow{a} \times \overrightarrow{c}$$

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59. If either
$$\overrightarrow{a} = \overrightarrow{0}$$
 or $\overrightarrow{b} = \overrightarrow{0}$ then $\overrightarrow{a} \times \overrightarrow{b} = \overrightarrow{0}$. Is the converse

true? Justify your answer with an example.



61. Find the area of the parallelogram whose adjacent sides are determined by the vectors $\overrightarrow{a} = \overrightarrow{i} - \overrightarrow{j} + 3\overrightarrow{k}$ and $\overrightarrow{b} = 2\overrightarrow{i} - 7\overrightarrow{j} + \overrightarrow{k}$

62. Let the vectors \overrightarrow{a} and \overrightarrow{b} be such that $\left|\overrightarrow{a}\right| = 3$ and $\left|\overrightarrow{b}\right| = \frac{\sqrt{2}}{3}$, then $\overrightarrow{a} \times \overrightarrow{b}$ is a unit vector, if the angle between \overrightarrow{a} and \overrightarrow{b} is:

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

B. $\frac{\pi}{4}$
C. $\frac{\pi}{3}$
D. $\frac{\pi}{2}$

Answer:

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63. Area of a rectangle having vertices A, B, C and D with position vectors : $-\hat{i} + \left(\frac{1}{2}\right)\hat{j} + 4\hat{k}, \,\hat{i} + \left(\frac{1}{2}\right)\hat{j} + 4\hat{k}, \,\hat{i} - \left(\frac{1}{2}\right)\hat{j} + 4\hat{k}$

and
$$-\hat{i}-\left(rac{1}{2}
ight)\hat{j}+4\hat{k}$$
, respectively is:
A. $rac{1}{2}$
B. 1
C. 2
D. 4

Answer:

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64. Write down a unit vector in XY-plane, making an angle of 30°

with the positive direction of x-axis.



65. Find the scalar components and magnitude of the vector joining the points $P(x_1, y_1, z_1)$ and $Q(x_2, y_2, z_2)$



66. A girl walks 4 km towards west, then she walks 3 km in a direction 30° east of north and stops. Determine the girl's displacement from her initial point of departure.

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67. If
$$\overrightarrow{a} = \overrightarrow{b} + \overrightarrow{c}$$
, then is it true that $\left|\overrightarrow{a}\right| = \left|\overrightarrow{b}\right| + \left|\overrightarrow{c}\right|$? Justify

your answer.



68. Find the value of x for which $x\left(\hat{i}+\hat{j}+\hat{k}
ight)$ is a unit vector.

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69. Find a vector of magnitude 5 units, and parallel to the resultant

of the vectors
$$\overrightarrow{a}=2\hat{i}+3\hat{j}-\hat{k}$$
 and $\overrightarrow{b}=\hat{i}-2\hat{j}+\hat{k}$

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70. If
$$\overrightarrow{a} = \hat{i} + \hat{j} + \hat{k}$$
, $\overrightarrow{b} = 2\hat{i} - \hat{j} + 3\hat{k}$ and $\overrightarrow{c} = \hat{i} - 2\hat{j} + \hat{k}$, find a unit vector parallel to the vector $2\overrightarrow{a} - \overrightarrow{b} + 3\overrightarrow{c}$

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71. Show that the points A(1, -2, -8), B(5, 0, -2) and C(11, 3, 7) are collinear.

72. Find the position vector of a point R which divides the line joining two points P and Q whose position vectors are $P\left(2\overrightarrow{a} + \overrightarrow{b}\right)$ and $Q\left(\overrightarrow{a} - 3\overrightarrow{b}\right)$ externally in the ratio 1 : 2. Also,

show that P is the mid point of the line segment RQ.

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73. The two adjacent sides of a parallelogram are given by the vectors $2\hat{i} - 4\hat{j} + 5\hat{k}$ and $\hat{i} - 2\hat{j} - 3\hat{k}$ Find a unit vector parallel to its diagonal (longer). Also find the area of parallelogram.

74. Show that the direction cosines of a vector equally inclined to

the axes OX, OY and OZ are
$$\left(\frac{1}{\sqrt{3}}\right), \left(\frac{1}{\sqrt{3}}\right), \left(\frac{1}{\sqrt{3}}\right)$$

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75. If
$$\overrightarrow{a} = \hat{i} + 4\hat{j} + 2\hat{k}$$
, $\overrightarrow{b} = 3\hat{i} - 2\hat{j} + 7\hat{k}$ and $\overrightarrow{c} = 2\hat{i} - \hat{j} + 4\hat{k}$
then find a vector \overrightarrow{d} (which is \perp ar to both \overrightarrow{a} and \overrightarrow{b}) and \overrightarrow{c} . \overrightarrow{d} =15.

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76. The scalar product of the vector $\hat{i} + \hat{j} + \hat{k}$ with a unit vector along the sum of vectors $2\hat{i} + 4\hat{j} - 5\hat{k}$ and $\lambda\hat{i} + 2\hat{j} + 3\hat{k}$ is equal to one. Find the value of λ . 77. If $\overrightarrow{a}, \overrightarrow{b}, \overrightarrow{c}$ are mutually perpendicular vectors of equal magnitudes, show that the vector $\overrightarrow{a} + \overrightarrow{b} + \overrightarrow{c}$ is equally inclined to $\overrightarrow{a}, \overrightarrow{b}$ and \overrightarrow{c} .

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78. Prove that
$$\left(\overrightarrow{a} + \overrightarrow{b}\right) \cdot \left(\overrightarrow{a} + \overrightarrow{b}\right) = \left|\overrightarrow{a}\right|^2 + \left|\overrightarrow{b}\right|^2$$
, if and only if \overrightarrow{a} , \overrightarrow{b} are perpendicular, given $\overrightarrow{a} \neq \overrightarrow{0}$, $\overrightarrow{b} \neq \overrightarrow{0}$.

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79. If θ is the angle between two vectors \overrightarrow{a} and \overrightarrow{b} , then $\overrightarrow{a} \cdot \overrightarrow{b} \ge 0$ only when:

A.
$$0 < heta < rac{\pi}{2}$$

B. $0 \leq heta \leq rac{\pi}{2}$

 $\mathsf{C}.\,0<\theta<\pi$

 $\mathsf{D.0} \leq \theta \leq \pi$

Answer:

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80. Let \overrightarrow{a} and \overrightarrow{b} be two unit vectors and θ is the angle between them. Then $\overrightarrow{a} + \overrightarrow{b}$ is a unit vector if:

A.
$$heta=rac{\pi}{4}$$

B. $heta=rac{\pi}{3}$
C. $heta=rac{\pi}{2}$
D. $heta=2rac{\pi}{3}$

Answer:

81. The value of :
$$\hat{i} \cdot (\hat{j} \times \hat{k}) + \hat{j} \cdot (\hat{i} \times \hat{k}) + \hat{k} \cdot (\hat{i} \times \hat{j})$$
 is :
A. 0
B. -1
C. 1
D. 3

Answer:

82. If
$$\theta$$
 is the angle between two vectors \overrightarrow{a} and \overrightarrow{b} , then $\left|\overrightarrow{a} \cdot \overrightarrow{b}\right| = \left|\overrightarrow{a} \times \overrightarrow{b}\right|$ when θ is equal to :

A. 0 B. $\frac{\pi}{4}$

 $\mathsf{C}.\,\frac{\pi}{2}$

D. π

Answer: