MATHS

BOOKS - RD SHARMA MATHS (ENGLISH)

SCALAR TRIPLE PRODUCT

Others

1. Find $\left[\vec{a}\ \vec{b}\ \vec{c}\right]$, when (i) $\vec{a}=2\hat{i}-3\hat{j}, \vec{b}=\hat{i}+\hat{j}-\hat{k}$ and $\vec{c}=3\hat{i}-\hat{k}$ (ii) $\vec{a}=\hat{i}-2\hat{j}+3\hat{k}, \vec{b}=2\hat{i}+\hat{j}-\hat{k}$ and $\vec{c}=\hat{j}+\hat{k}$

Watch Video Solution

2. Find the volume of the parallelepiped whose coterminous edges are represented by the vectors: i, $\vec{a}=2\hat{i}+3\hat{j}+4\hat{k}, \vec{b}=\hat{i}+2\hat{j}-\hat{k}, \vec{c}=3\hat{i}-\hat{j}+2\hat{k}$ ii,

$\vec{a} = 2\hat{i} - 3\hat{j} + 4\hat{k},\ \vec{b} = \hat{i} + 2\hat{j} - \hat{k},\ \vec{c} = 3\hat{i} - \hat{j} - 2\hat{k}$ iii,

$\vec{a} = 11\hat{i},\ \vec{b} = 2\hat{j},\ \vec{c} = 13\hat{k}$ iv,

$\vec{a} = \hat{i} + \hat{j} + \hat{k},\ \vec{b} = \hat{i} - \hat{j} + \hat{k},\ \vec{c} = \hat{i} + 2\hat{j} - \hat{k}$

Watch Video Solution

3. Evaluate : $\left[\hat{i}\hat{j}\hat{k}\right] + \left[\hat{j}\hat{k}\hat{i}\right] + \left[\hat{k}\hat{i}\hat{j}\right]\ \left[2\hat{i}\hat{j}\hat{k}\right] + \left[\hat{i}\hat{k}\hat{j}\right] + \left[\hat{k}\hat{j}2\hat{i}\right]$

Watch Video Solution

4. Prove that: $\left(\vec{a} - \vec{b}\right) \cdot \left\{\left(\vec{b} - \vec{c}\right) \times \left(\vec{c} - \vec{a}\right)\right\} = 0$

Watch Video Solution

5. Show that each of the following triads of vectors are coplanar:

$\vec{a} = \hat{i} + 2\hat{j} - \hat{k},\ \vec{b} = 3\hat{i} + 2\hat{j} + 7\hat{k},\ \vec{c} = 5\hat{i} + 6\hat{j} + 5\hat{k}$

$\vec{a} = -4\hat{i} - 6\hat{j} - 2\hat{k},\ \vec{b} = -\hat{i} + 4\hat{j} + 3\hat{k},\ \vec{c} = -8\hat{i} - \hat{j} + 3\hat{k}$

$\hat{a} = \hat{i} - 2\hat{j} + 3\hat{k},\ \vec{b} = -2\hat{i} + 3\hat{j} - 4\hat{k},\ \vec{c} = \hat{i} - 3\hat{j} + 5\hat{k}$

Watch Video Solution

6. Find the value of λ so that the following vectors are coplanar: $\vec{a}=\hat{i}-\hat{j}+\hat{k}, \vec{b}=2\hat{i}+\hat{j}-\hat{k}, \vec{c}=\lambda\hat{i}-\hat{j}+\lambda\hat{k}$

Watch Video Solution

7. Find the value of λ for which the four points with position vectors $-\hat{j}-\hat{k}, 4\hat{i}+5\hat{j}+\lambda\hat{k}, 3\hat{i}+9\hat{j}+4\hat{k}$ and $4\hat{i}+4\hat{j}+4\hat{k}$ are coplanar.

Watch Video Solution

8. $\vec{a}, \vec{b}$ and $\vec{c}$ are the position vectors of points A, B and C respectively, prove that : $\vec{a}\times\vec{b}+\vec{b}\times\vec{c}+\vec{c}\times\vec{a}$ is vector perpendicular to the plane of triangle ABC.

Watch Video Solution

9. Let $\overrightarrow{a} = \hat{i} + \hat{j} + \hat{k}, \overrightarrow{b} = \hat{i}$ and $\hat{c} = c_1\hat{i} + c_2\hat{j} + c_3\hat{k}$. Then, (1)If $c_1 = 1$ and $c_2 = 2,$ find c_3 which makes $\overrightarrow{a}, \overrightarrow{b}$ and $\overrightarrow{c}$ coplanar. (2)If $c_2 = -1$ and $c_3 = 1,$ show that no value of c_1 can make $\overrightarrow{a}, \overrightarrow{b}$ and $\overrightarrow{c}$ coplanar.

Watch Video Solution

10. Find $\left[\overrightarrow{a}, \overrightarrow{b}, \overrightarrow{c}\right], when \overrightarrow{a} = 2\hat{i} - 3\hat{j} + 4\hat{k}, \overrightarrow{b} = \hat{i} + 2\hat{j} - \hat{k} and \overrightarrow{c} = 3\hat{i} - \hat{j} +$

Watch Video Solution

11. Find the volume of a parallelepiped whose edges are given by $-3\hat{i} + 7\hat{j} - 5\hat{k}, -5\hat{i} + 7\hat{j} - 3\hat{k} and 7\hat{i} - 5\hat{j} - 3\hat{k}\cdot$

Watch Video Solution

12. If $\left|aa^2 1 + a\hat{3}\ \hat{}\ 21 + b^3\ \hat{}\ 21 + c^3\right| = 0$ and the vectors $\vec{A} = \hat{i} + a\hat{j} + a^2\hat{k}, \vec{B} = \hat{i} + b\hat{j} + b^2\hat{k}, \vec{C} = \hat{i} + c\hat{j} + c^2\hat{k}$ are non-coplanar, then prove that $abc = -1$.

Watch Video Solution

13. Evaluate $0.2^3 + 100.45^0$

Watch Video Solution

14. Simplify: $\left[\vec{a} - \vec{b}\vec{b} - \vec{c}\vec{c} - \vec{a}\right]$

Watch Video Solution

15. If the vectors $\vec{\alpha} = a\hat{i} + a\hat{j} + c\hat{k}, \vec{\beta} = \hat{i} + \hat{k}$ and $\vec{\gamma} = c\hat{i} + c\hat{j} + b\hat{k}$ are coplanar, then prove that c is the geometric mean of a and b.

Watch Video Solution

16. Determine α such that a vector $\vec{r}$ is at right angles to each of the vectors $\vec{a} = \alpha\hat{i} + \hat{j} + 3\hat{k}$, $\vec{b} = 2\hat{i} + \hat{j} - \alpha\hat{k}$, $\vec{c} = -2\hat{i} + \alpha\hat{j} + 3\hat{k}$

Watch Video Solution

17. Find the range of $f(x) = \sin^{-1}x + \tan^{-1}x + \cos^{-1}x$.

Watch Video Solution

18. If $\vec{a}, \vec{b}, \vec{c}$ are three non-coplanar vectors, prove that $\left[\vec{a} + \vec{b} + \vec{c}\,\vec{a} + \vec{b}\,\vec{a} + \vec{c}\right] = -\left[\vec{a}\,\vec{b}\,\vec{c}\right]$

Watch Video Solution

19. For any three vectors a b,c, show that $\vec{a} \times \left(\vec{b} + \vec{c}\right) + \vec{b} \times \left(\vec{c} + \vec{a}\right) + \vec{c} \times \left(\vec{a} + \vec{b}\right) = 0$

Watch Video Solution

20. Let $\vec{a}, \vec{b}, \vec{c}$ be three non-zero vectors such that $\vec{c}$ is a unit vector perpendicular to both $\vec{a} \, and \, \vec{b}$. If the between $\vec{a} \, and \, \vec{b}$ is $\pi/6$, prove that $\left[\vec{a} \vec{b} \vec{c}\right]^2 = \frac{1}{4}\left|\vec{a}\right|^2\left|\vec{b}\right|^2.$

Watch Video Solution

21. Let $\vec{a}, \vec{b} \, and \, \vec{c}$, be non-zero non-coplanar vectors. Prove that: $\vec{a} - 2\vec{b} + 3\vec{c}, \; -2\vec{a} + 3\vec{b} - 4\vec{c} \, and \, \vec{c} - 3\vec{b} + 5\vec{c}$ are coplanar vectors. $2\vec{a} - \vec{b} + 3\vec{c}, \; \vec{a} + \vec{b} - 2\vec{c} \, and \, \vec{a} + \vec{b} - 3\vec{c}$ are non-coplanar vectors.

Watch Video Solution

22. Find the altitude of a parallelepiped determined by the vectors $\vec{a}, \vec{b}\, and\, \vec{c}$, if the base is taken as the parallelogram determined by $\vec{a}\, and\, \vec{b}$, and if $\vec{a}=\hat{i}+\hat{j}+\hat{k}, \vec{b}=2\hat{i}+4\hat{j}-\hat{k} and \vec{c}=\hat{i}+\hat{j}+3\hat{k}$.

Watch Video Solution

23. Let $\vec{a}, \vec{b}, \vec{c}$, be three non-zero vectors. If $\vec{a}.\left(\vec{b}\times\vec{c}\right)=0$ and $\vec{b}$ and $\vec{c}$ are not parallel, then prove that $\vec{a}=\lambda\vec{b}+\mu\vec{c}, where\lambda$ are some scalars.

Watch Video Solution

24. If the vectors $\vec{\alpha}=a\hat{i}+\hat{j}+\hat{k}, \vec{\beta}=\hat{i}+b\hat{j}+\hat{k} and \vec{\gamma}=\hat{i}+\hat{j}+c\hat{k}$ are coplanar, then prove that $\frac{1}{1-a}+\frac{1}{1+b}+\frac{1}{1-c}=1, where a\neq 1, b\neq 1 and c\neq 1.$

Watch Video Solution

25. If a is a non-zero real number, then prove that the vectors $\vec{\alpha} = a\hat{i} + 2a\hat{j} - 3a\hat{k}, \vec{\beta} = (2a+1)\hat{i} + (2a+3)\hat{j} + (a+1)\hat{k} and, \vec{\gamma} = ($

are never coplanar.

Watch Video Solution

26. If $\vec{a} + \vec{b} + \vec{c} = 0,$ prove that $\left(\vec{a} \times \vec{b}\right) = \left(\vec{b} \times \vec{c}\right) = \left(\vec{c} \times \vec{a}\right)$

Watch Video Solution

27. Show that the vectors $\vec{a} = -2\hat{i} - 2\hat{j} + 4\hat{k}, \vec{b} = -2\hat{i} + 4\hat{j} - 2\hat{k} \text{ and } \vec{c} = 4\hat{i} - 2\hat{j} - 2\hat{k}$

are coplanar.

Watch Video Solution

28. Find λ so that the vectors $\vec{a} = 2\hat{i} - \hat{j} + \hat{k}, \ \vec{b} = \hat{i} + 2\hat{j} - 3\hat{k} \ and \ \vec{c} = 3\hat{i} + \lambda\hat{j} + 5\hat{k}$ are coplanar.

Watch Video Solution

29. The four points whose position vector are $6\hat{i} - 7\hat{j}, 16\hat{i} - 29\hat{j} - 4\hat{k}, 3\hat{j} - 6\hat{k}, 2\hat{i} + 5\hat{j} + 10\hat{k}$ are coplanar

Watch Video Solution

30. For any three vectors $a, \ b, \ c$ prove that $\left[\vec{a} + \vec{b} \ \vec{b} + \vec{c} \ \vec{c} + \vec{a}\right] = 2\left[\vec{a} \ \vec{b} \ \vec{c}\right]$.

Watch Video Solution

31. Show that vectors $\vec{a}, \vec{b}, \vec{c}$ are coplanar if $\vec{a}+\vec{b}, \vec{b}+\vec{c}, \vec{c}+\vec{a}$ are coplanar.

Watch Video Solution

32. Show that the vectors $\vec{a}-\vec{b}, \vec{b}-\vec{c}, \vec{c}-\vec{a}$ are coplaner.

Watch Video Solution

33. What can you conclude about four non zero vectors $\vec{a}, \vec{b}, \vec{c}$ $and\ \vec{d}$ given that $\left|\left(\vec{a}\times\vec{b}\right)\dot{\vec{c}}\right|+\left|\left(\vec{b}\times\vec{c}\right)\dot{\vec{d}}\right|=0$.

Watch Video Solution

34. Evaluate the following: $\left[\hat{i}\ \hat{j}\ \hat{k}\right]+\left[\hat{j}\ \hat{k}\ \hat{i}\right]+\left[\hat{k}\ \hat{i}\ \hat{j}\right]$.

Watch Video Solution

35. Evaluate : $\left[\hat{i}\hat{j}\hat{k}\right]+\left[\hat{j}\hat{k}\hat{i}\right]+\left[\hat{k}\hat{i}\hat{j}\right]\left[2\hat{i}\hat{j}\hat{k}\right]+\left[\hat{i}\hat{k}\hat{j}\right]+\left[\hat{k}\hat{j}2\hat{i}\right]$

Watch Video Solution

36. Find $\left[\vec{a}\ \vec{b}\ \vec{c}\right]$, when : $\vec{a}=2\hat{i}-3\hat{j},\ \vec{b}=\hat{i}+\hat{j}-\hat{k}\ and\ \vec{c}=3\hat{i}-\hat{k}$.

Watch Video Solution

37. Find $\left[\vec{a}\ \vec{b}\ \vec{c}\right]$, when : $\vec{a}=\hat{i}-2\hat{j}+3\hat{k},\ \vec{b}=2\hat{i}+\hat{j}-\hat{k}\ and\ \vec{c}=\hat{j}+\hat{k}$.

Watch Video Solution

38. Find the volume of the parallelepiped whose coterminous edges are represented by the vector: $\vec{a}=2\hat{i}+3\hat{j}+4\hat{k},\ \vec{b}=\hat{i}+2\hat{j}-\hat{k},\ \vec{c}=3\hat{i}-\hat{j}+2\hat{k}$.

Watch Video Solution

39. Find the volume of the parallelepiped whose coterminous edges are represented by the vector: $\vec{a} = 2\hat{i} - 3\hat{j} + 4\hat{k}, \ \vec{b} = \hat{i} + 2\hat{j} - \hat{k}, \ \vec{c} = 3\hat{i} - \hat{j} - 2\hat{k}$.

Watch Video Solution

40. Find the volume of the parallelepiped whose coterminous edges are represented by the vector: $\vec{a} = 11\hat{i}, \ \vec{b} = 2\hat{j}, \ \vec{c} = 13\hat{k}$.

Watch Video Solution

41. Find the volume of the parallelepiped whose coterminous edges are represented by the vector: $\vec{a} = \hat{i} + \hat{j} + \hat{k}, \ \vec{b} = \hat{i} - \hat{j} + \hat{k}, \ \vec{c} = \hat{i} + 2\hat{j} - \hat{k}$.

Watch Video Solution

42. Show that each of the following triads of vectors are coplanar: $\vec{a} = \hat{i} + 2\hat{j} - \hat{k}, \ \vec{b} = 3\hat{i} + 2\hat{j} + 7\hat{k}, \ \vec{c} = 5\hat{i} + 6\hat{j} + 5\hat{k}$.

Watch Video Solution

43. Show that each of the following triads of vectors are coplanar: $\vec{a} = -4\hat{i} - 6\hat{j} - 2\hat{k}, \ \vec{b} = -\hat{i} + 4\hat{j} + 3\hat{k}, \ \vec{c} = -8\hat{i} - \hat{j} + 3\hat{k}$.

Watch Video Solution

44. Show that each of the following triads of vectors are coplanar: $\vec{a} = \hat{i} - 2\hat{j} + 3\hat{k}, \ \vec{b} = -2\hat{i} + 3\hat{j} - 4\hat{k}, \ \vec{c} = \hat{i} - 3\hat{j} + 5\hat{k}$.

Watch Video Solution

45. Find the value of λ so that the following vectorts are coplanar: $\vec{a} = \hat{i} - \hat{j} + \hat{k}, \ \vec{b} = 2\hat{i} + \hat{j} - \hat{k}, \ \vec{c} = \lambda\hat{i} - \hat{j} + \lambda\hat{k}$

Watch Video Solution

46. Find the value of λ so that the following vectorts are coplanar: $\vec{a}=2\hat{i}-\hat{j}+\hat{k},\ \vec{b}=\hat{i}+2\hat{j}-3\hat{k},\ \vec{c}=\lambda\hat{i}+\lambda\hat{j}+5\hat{k}\cdot$

Watch Video Solution

47. Find the value of λ so that the following vectorts are coplanar: $\vec{a}=\hat{i}+2\hat{j}-3\hat{k},\ \vec{b}=3\hat{i}+\lambda\hat{j}+\hat{k},\ \vec{c}=\hat{i}+2\hat{j}+2\hat{k}$

Watch Video Solution

48. Find the value of λ so that the following vectorts are coplanar: $\vec{a}=\hat{i}+3\hat{j},\ \vec{b}=5\hat{k},\ \vec{c}=\lambda\hat{i}-\hat{j}$

Watch Video Solution

49. Show that the points having position vectors $6\hat{i}-7\hat{j},\ 16\hat{i}-19\hat{j}-4\hat{k},\ 3\hat{j}-6\hat{k},\ 2\hat{i}+5\hat{j}+10\hat{k}$ are not coplanar.

Watch Video Solution

50. Show that the points $A(-1,\ 4,\ -3),\ B(3,\ 2,\ -5),\ C(-3,\ 8,\ -5) and\ D(-3,\ 2,\ 1)$ are coplanar.

Watch Video Solution

51. Show that four points whose position vectors are $6\hat{i}-7\hat{j},\ 16i-19\hat{j}-4\hat{k},\ 3\hat{i}-6\hat{k},\ 2\hat{i}-5\hat{j}+10\ \hat{k}$ are coplanar.

Watch Video Solution

52. Find the value of λ for which the four points with position vectors $\hat{j}-\hat{k},\ 4\hat{i}+5\hat{j}+\lambda\hat{k},\ 3\hat{i}+9\hat{j}+4\hat{k}\ and -4\hat{i}+4\hat{j}+4\hat{k}$ are coplanar.

Watch Video Solution

53. Prove that $\left(\vec{a}-\vec{b}\right)\dot{\left(\vec{b}-\vec{c}\right)}\times\left(\vec{c}-\vec{a}\right)=0$

Watch Video Solution

54. Let $\rightarrow a=\hat{i}+\hat{j}+\hat{k},\ \rightarrow b=\hat{i}and\rightarrow c=c_1\hat{i}+c_2\hat{j}+c_3\hat{k}$ Then

(a) If $(b)(c)(d)c_e1(f)(g)=\backslash\ \ 1(h)$ (i) and $(j)(k)(l)c_m2(n)(o)=\backslash\ \ 2(p)$

(q) , find `(r) (s) (t) c_(u)3(v) (w) (x

Watch Video Solution

55. Find λ for which the points $A(3,\ 2,\ 1),\ B(4,\ \lambda,\ 5),\ C(4,\ 2,\ -2)\ and\ D(6,\ 5,\ -1)$ are coplanar.

Watch Video Solution

56. Write the value of $\left[2\hat{i}\ 3\hat{j}\ 4\hat{k}\right]$

Watch Video Solution

57. Write the value of $\left[\hat{i}+\hat{j}\ \hat{j}+\hat{k}\ \hat{k}+\hat{i}\right]$

Watch Video Solution

58. Write the value of $\left[\hat{i}-\hat{j}\ \hat{j}-\hat{k}\ \hat{k}-\hat{i}\right]$

Watch Video Solution

59. Find the values of a for which are vectors $\overrightarrow{\alpha}=\hat{i}+2\hat{j}+\hat{k}, \overrightarrow{\beta}=a\hat{i}+\hat{j}+2\hat{k}\ and\ \overrightarrow{\gamma}=\hat{i}+2\hat{j}+a\hat{k}$ are coplanar.

Watch Video Solution

60. Find the volume of the parallepiped with its edges represented by the vectors $\hat{i}+\hat{j},\ \hat{i}+2\hat{j}\ and\ \hat{i}+\hat{j}+\pi\hat{k}\cdot$

Watch Video Solution

61. If $\vec{a},\ \vec{b},$ are non collinear vectors, then find the value of $\left[\vec{a}\ \vec{b}\ \hat{i}\right]\hat{i}+\left[\vec{a}\ \vec{b}\ \hat{j}\right]\hat{j}+\left[\vec{a}\ \vec{b}\ \hat{k}\right]\hat{k}\cdot$

Watch Video Solution

62. For any two vectors $\vec{a}\ and\ \vec{b}$ writhe the value of $\left(\vec{a}\dot{\vec{b}}\right)y^2+\left|\vec{a}\times\vec{b}\right|^2$ in terms of their magnitudes.

Watch Video Solution

63. If $\left[3\vec{a}+7\vec{b}\ \vec{c}\ \vec{d}\right]=\lambda\left[\vec{a}\ \vec{c}\ \vec{d}\right]+\mu\left[\vec{b}\ \vec{c}\ \vec{d}\right]$, then find the value of $\lambda+\mu\cdot$

Watch Video Solution

64. Find $\vec{a}.\left(\vec{b}\times\vec{c}\right)$ if $\vec{a}=2\hat{i}+\hat{j}+3\hat{k},\ \vec{b}=-\hat{i}+2\hat{j}+\hat{k}\ and\ \vec{c}=3\hat{i}$ -

Watch Video Solution

65. If $\vec{a}$ in the plane of vectors $\vec{b}\ and\ \vec{c}$ then which of the following is correct? $\left[\vec{a}\ \vec{b}\ \vec{c}\right]=0$ b. "\"`[vec a\ vec b\ vec c]=1' c. "[vec a\ vec b\ vec c]=3" d. "[vec b\ vec c\ vec a]=1"

Watch Video Solution

66. The value of $\left[\vec{a}-\vec{b}, \vec{b}-\vec{c}, \vec{c}-\vec{a}\right],\ where\ \left|\vec{a}\right|=1,\ \left|\vec{b}\right|=5,\ \left|\vec{c}\right|=3, is$

0 b. 1 c. 6 d. none of these

Watch Video Solution

67. If $\vec{a}, \vec{b}, \vec{c}$ are three non coplanar mutually perpendicular unit vectors then $\left[\vec{a}\ \vec{b}\ \vec{c}\right]$ is ± 1 b. $\backslash\ \ 0\backslash$ c. -1 d. 2

Watch Video Solution

68. For any three vectors $\vec{a}, \vec{b}, \vec{c}$ the expression $\left(\vec{a}-\vec{b}\right)\left(\vec{b}-\vec{c}\right)\dot{\times}\left(\vec{c}-\vec{a}\right)$ equals $\left[\vec{a}\ \vec{b}\ \vec{c}\right]$ b. $\backslash\ \ 2\left[\vec{a}\ \vec{b}\ \vec{c}\right]\backslash$ c. $\left[\vec{a}\ \vec{b}\ \vec{c}\right]^2$ d. none of these

Watch Video Solution

69. If $a,\ b,\ c$ are non coplanar vectors then $\frac{\vec{a}\ \dot{\vec{b}} \times \vec{c}}{\left(\vec{c} \times \vec{a}\right)\dot{\vec{b}}} + \frac{\vec{b}\ \dot{\vec{a}} \times \vec{c}}{\vec{\cdot}\left(\vec{a} \times \vec{b}\right)}$ is equal to 2 b. $\backslash\ \ 0\backslash$ c. 1 d. none of these

Watch Video Solution

70. Let $\vec{a} = a_1\hat{i} + a_2\hat{j} + a_2\hat{k},\ \vec{b} = b_1\hat{i} + a_2\hat{j} + b_2\hat{k},$ and $\vec{c} = c_1\hat{i} + c_2\hat{j} + c_2\hat{k},$ be three non-zero vectors such that $\vec{c}$ is a unit vector perpendicular to both vectors $\vec{a}$ and $\vec{b}$. If the angle between a and b is $\pi/6,$ then $\begin{vmatrix} a_1 & a_2 & a_3 \\ b_1 & b_2 & b_3 \\ c_1 & c_2 & c_3 \end{vmatrix}^2$ is equal to

Watch Video Solution

71. Find $\frac{dy}{dx}$ if $3 = 2x - 3y$

Watch Video Solution

72. If the vectors $4\hat{i}+11\hat{j}+m\hat{k},\ 7\hat{i}+2\hat{j}+6\hat{k}\ and\ \hat{i}+5\hat{j}+4\hat{k}$ are coplanar then $m=\ 38$ b. $\backslash\ \ 10\backslash$ c. -1 d. -10

Watch Video Solution

73. For non-zero vectors $\vec{a}, \vec{b}, and\, \vec{c}\left|\left(\vec{a}\times\vec{b}\right)\dot{\vec{c}}\right|=\left|\vec{a}\right|\left|\vec{b}\right|\left|\vec{c}\right|$ holds if and only if $\vec{a}\dot{\vec{b}}=0, \vec{b}\dot{\vec{c}}=0$ b. $\vec{b}\dot{\vec{}}=0, \dot{\vec{}}\vec{a}=0$ c. $\dot{\vec{}}\vec{a}=0, \vec{a}\dot{\vec{b}}=0$ d. $\vec{a}\dot{\vec{b}}=0, \vec{b}\dot{\vec{c}}=0\dot{\vec{}}\vec{a}=0$

Watch Video Solution

74. $\left(\vec{a}+\vec{b}\right)\vec{b}\dot{+}\vec{c}\times\left(\vec{a}+\vec{b}+\vec{c}\right)=\left[\vec{a}\ \vec{b}\ \vec{c}\right]$ b. $\backslash\ \ 0\backslash$ c. $2\left[\vec{a}\ \vec{b}\ \vec{c}\right]$ d. $-\left[\vec{a}\ \vec{b}\ \vec{c}\right]$

Watch Video Solution

75. If $\vec{a}, \vec{b}, \vec{c}$ are three non coplanar vectors, then $\left(\vec{a}+\vec{b}+\vec{c}\right)\cdot\left(\vec{a}+\vec{b}\right)\times\vec{a}+\vec{c}\Big)\Big]$ equals $\left[\vec{a}\ \vec{b}\ \vec{c}\right]$ b. \ 0\ c. $2\left[\vec{a}\ \vec{b}\ \vec{c}\right]$ d. $-\left[\vec{a}\ \vec{b}\ \vec{c}\right]$

Watch Video Solution

76. $\left(\vec{a}+2\vec{b}-\vec{c}\right)\cdot\left(\vec{a}-\vec{b}\right)\times\left(\vec{a}-\vec{b}-\vec{c}\right)$ is equal to $\left[\vec{a}\ \vec{b}\ \vec{c}\right]$ b. c. $2\left[\vec{a}\ \vec{b}\ \vec{c}\right]$ d. $3\left[\vec{a}\ \vec{b}\ \vec{c}\right]$

Watch Video Solution