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The unit vector parallel to the resultant of the vectors

Answer Text' $\frac{1}{7}(3\hat{i}+6\hat{j}-2\hat{k})$ ' $\frac{1}{7}(3\hat{i}+6\hat{j}+2\hat{k})$ ' $\frac{1}{49}(3\hat{i}+6\hat{j}-2\hat{k})$ ' $\frac{1}{49}(3\hat{i}-6\hat{j}+2\hat{k})$ ' Solution :Resutant of vectors `vec(A)` and `vec(B)`
`vec(R) = vec(A)+vec(B)= 4hat(i)+3hat(j)+6hat(k)-hat(i)+3hat(j)-8hat(k)`
`vec(R) = 3hat(i)+6hat(j)-2hat(k)`
`hat(R) = (vec(R))/|vec(R)| = (3hat(i)+6hat(j)-2hat(k))/(sqrt(3^2+6^2+(-2)^2))= (3hat(i)+6hat(j)-2hat(k))/7` Find the unit vector parallel to the resultant $\sqrt{(a+bi)}$ if $\sqrt{(a=2i+4j-5k)}$ and $\sqrt{(b=i+2j+3k)}$? Ask Your Own Question Quick Questions See More National Open University of Nigeria Questions If the magnitude of the sum of two vectors is greater than the magnitude of either vector, then: If the magnitude of the sum of two vectors is less than the magnitude of either vector, then: a. the scalar product of the vectors Consider the plane that contains points A(2,3,1), B(-11,1,2), C(-7,-3,-6). a) Find two vectors that are parallel to the plane. Ans: AC, BC or AB will be parallel to the plane. b) Find two vectors that are perpendicular to the Divide this vector by its magnitude which is $(4^2 + (-3)^2 + (-12)^2)^{1/2} = 13$ 0 Share this answer Unit vector= A/|A|Here A= 4i-3j-12k and A is magnitude of the vector i.e 13.So unit vector parallel to A is 4/13i-3/13j-12/13k. 0 Share this answer 500000+ Question Answers © Scholr is India's Largest Knowledge Sharing Platform. Send Your Questions to Experts. Ask Last updated at May 6, 2021 by Teachoo Transcript Misc 6 Find a vector of magnitude 5 units, and parallel to the resultant of the vectors $a' = 2\hat{i} + 3\hat{j} - \hat{k}$ and $b' = \hat{i} - 2\hat{j} + \hat{k}$.Given $a' = 2\hat{i} + 3\hat{j} - \hat{k}$ ($b' = \hat{i} - 2\hat{j} + \hat{k}$ Resultant of $\vec{r}$ & $\vec{r}' = \vec{r} + \vec{r}' = (2 + 1)\hat{i} + (3 - 2)\hat{j} + (-1 + 1)\hat{k} = 3\hat{i} + 1\hat{j} + 0\hat{k}$ Let $\vec{r} = (x\hat{i} + y\hat{j}) \therefore \vec{c} = 3\hat{i} + 1\hat{j}$ Magnitude of $\vec{c} = \sqrt{(3^2+1^2+0^2)}$ $|\vec{c}| = \sqrt{10}$ Unit vector in direction of $\vec{c} = \frac{1}{|\vec{c}|} \times \vec{c} = \frac{1}{\sqrt{10}} \times [3\hat{i} + 1\hat{j} + 0\hat{k}] = \frac{3}{\sqrt{10}}\hat{i} + \frac{1}{\sqrt{10}}\hat{j} + 0\hat{k}$ Vector with magnitude 1 = $\frac{3}{\sqrt{10}}\hat{i} + \frac{1}{\sqrt{10}}\hat{j} + 0\hat{k}$ Vector with magnitude 5 = $5 \times [\frac{3}{\sqrt{10}}\hat{i} + \frac{1}{\sqrt{10}}\hat{j} + 0\hat{k}] = \frac{15}{\sqrt{10}}\hat{i} + \frac{5}{\sqrt{10}}\hat{j} + 0\hat{k} = \frac{15\sqrt{10}}{10}\hat{i} + \frac{5\sqrt{10}}{10}\hat{j} = (\frac{3\sqrt{10}}{2})\hat{i} + \sqrt{10}\hat{j}$ Hence the required vector is $(\frac{3\sqrt{10}}{2})\hat{i} + \sqrt{10}\hat{j}$ the unit vector parallel to the resultant of the vectors a=4i-3j and b=8i+8j is. the unit vector parallel to the resultant of the vectors 2i+3j-k and 4i-3j+2k. the unit vector parallel to the resultant of the vectors a=4i+3j+6k and b=-1+3i-8k is. the unit vector parallel to the resultant of the vectors 2i+4j-5k. the unit vector parallel to the resultant of the vectors a=4i+3i+6k and b=-1+3i-8k. the unit vector parallel to the resultant of the vectors a=4i+3j +6k and b=-i+3 -8k is. the unit vector parallel to the resultant of the vectors 2i+4j-5k and i+2j+3k. find the unit vector parallel to the resultant of the vectors

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