

We're going back. Problems. Product and this product. Let's start. If I. Starting with. So are you. Can you please satisfy some properties? This is. Dot product. And it is equal to 1. Service is also. Number one. Which of the following statements? So we have the statements? The first statement is. That is called. This. Thank you. The question says and we see the unit with the condition. If I want to describe. To consider the angles between the vectors. So first that is considered. We're just tactics. Between these just that. Then let us use our definition of a cross product and dot product and see what we can do. So one is equal to. This. So you might. Cost. We have cost. You also know the definition of cross person, So this will yield. What is the angle between these two? We have denoted by side. Cross products. When did you? Cost is already the cost. No, you have been already given that these magnitudes are one. Using this one, we can simply write this product. Scientific knowledge. What caused it? So when can this happen? This kind of only one is equal to. Scientist positive scientist. And when when is passed through the cost Theta? So when Theta is equal to? So that means false. My wife. Observation. When is the album between a bar and B bar and is equal to π by? So what can happen? Perpendicular to device. Similarly to that is the angle between CC and, So it is. And ETA is zero. That means the value between two vectors is θ . Then we can say the vectors are parallel to each other. That is, B bar cross B bar C bar cross B. So these are the controls that we have. What spiritual condition can be denoted in a different way? You are gross. Does a scalar multiple? See why crossing. And I know we are. This gives US1 interesting observation. Suppose I take dot product of this cross. I am using this that is called as star star. You know already known that it's been a scalar triple product 2 vectors are same. Then what you get θ . That means that it is in place. Public. We are not following this notation. That reads. Get a double product is zero. That means and they are nonzero because if we and C. But our first our first this game. Can I do a similar thing? Try again, try the same thing. Save. Going to be θ . Product of. You could buy. Out. Q is not correct. Are and So people are and are not. It is Bobby contradictions suppose. This is. What would it mean? Must be equal. Names. I have one more assumption, that is their unit with this. Sting this game will either be plus one or minus one. That means this is equal to plus or minus. Chips. You can use this. This cross product dot product was cross product. Is equal to 1. So I do this plus 1 - 1 So I can easily say that. Easy. Body. What did I do? I just use this expression bar is plus minus and replace the D bar with P bar. Therefore I am getting. Requests the bar across. Plus or minus. This is also. So you just rearrange the. Plus minus. This one so. Things. Dot. Of course. If you buy. So. This also implies. See. This is the right. Virginity. Requirements. These are not. The direction of. This is also quality plus one. But if you look at the app bar dot a bar. Those sticks. Minus one. This cannot happen. This is a contradiction. Therefore, the bar cannot be parallel to the bar. Body. Just take the last statement. He bought and we bought our first. We bought and bought out. So let us assume. Bodies. Body. Both are your network. The same is the story which. What are you doing this? Primary. That's what mine is. You thought? If this is the case, we can go back to the original. Ask me what? Most people what is the implication on this? You are actually saying I can replace the scene by plus or minus B, and I can replace it by plus or minus. Here instead of. Who else? Because of the design, plus or minus one. That is not correct, because this is equal to plus one that is. So again, this is a contradict. So this culture, this also is incorrect. So we are only surviving with our. Find an answer is correct. It says that. To our mother. OK. Problem. The problem. I wouldn't. I want to see. Dot product. Environment. Cross. Though there may be many variations. So they are given the answers. It's just our dot product. Bing. Case. Find this off. Which one is correct? Just trying to solve this. That expression dot. Cross product additions.

So let us try to 1st pick up this for a part. Just keep that part as it is. Bob this. Easy. Crossing. Healthy body. Invite. You bought. By crossing. The number that is cross product is not committed. You cannot stop doing this. But it's still there. Purpose. What is a bar across a bar? Sign of the same vector. Talked about. I will just close this dot product distributive property and this bracket will come everywhere. Now if I want to write everything. Hey could have talked this but I'm not talking to you because I want to write scalar triple product actually. Crossing. Yes. BC. It will be.

So what are the terms? I mean. I'm just copying the terms first. Again. Now you can tell me if you remember this. All the terms will vanish. Except for those which have different 3 requests. History survey. You, seriously? Sleeping Beauty. Now. Because all these stocks have the vectors. Everybody's.

So what I'm just doing is only. Stories. 2nd.

So what you have come up with the answer. Now we have to see if this answer matches with anyone of the current answers. CBC CBC CBC this is likely. Stuff is there. BBC has become testing this because I have a form of. What can you do with this plan? I want to convert this term into a form of ABC,

So what are you going to do? I will first check here and be here, which will give me a negative sign. And if it's, it's just it's as good as changing 100. Then if you look at this term and if I want to convert this to ABC, what will I do have this term and this and see with this? It is again equivalent to say. Why this? Minus everything minus everything.

So what is this is? Spots. Example of collection of dot product and cross product and scalar triple product. There is no salt, another problem. Connection.

So this condition. Steps. North now. \$15. Have been given. I have been given to distinguish their different product. Let's start with. Do I know anything that will convert this product? Multiplied by something. I have one.

So that I can effectively use the right hand side, which is this. Multiplied by a bar here on the left hand side. Then I can solve the problem. Far from CPA. Across. Now I will use the. Yes. The first and the last. Product minus minus plus. Second, you. This is the. Now you see I have one here. One of these spells on one side and put that down containing the bar on the other side. You get this. Plus we are launched. ABC has absolutely says that none of them are collinear.

So because ABC are not. Something about this and I cannot write a bar in terms of the bar because they are not equally so. If this is true then. It must be true that C bar dot a bar is equal to 0. One way thing gives magnitude of this magnitude of seeing if I have C bar bar I can rewrite this. They have given. Also. Going to see. Would be MC are nonzero vectors,

So this cannot be 0,

So this forces us to say that. You better take this out cost. This one. Equal to 0. One by three must be equal to zero. That implies. 1.3. Must be an. You can easily evaluate. Cost. You will get.

So that is. Some other problems. Cross. Dot product. In this case here. Which things make sense that first see taking people across the bar dot P bar C bar? Let's this scale and then taking the cross product of it. Sensually, you are actually doing this. Now let us handle the terms for one by one that is. First take that down within the smaller square bracket that is part. I want this for you. This is already seen something about this. It just splits over some over the cross product

So it will be a bar across the bar. This way. I'd like to just. Also, this this storm is actually some of three cross products,

So that is on the top of it, multiply by. People across. You see people.

So what will be the cross product of these two terms?

So you can. Cross product. Yes. The use of formula. Converting to electrical product scalar triple product using the scalar triple product.

So what is the formula you would take P bar cross a bar as one vector and it is multiplied by V bar cross. Then what do you do? Gross. Distinct. The last stop. This talk will be multiplied by. Find this song. People across the body keep messages are here and multiplying it last.

So here I will multiply it. This will be a dot product. The last similarly I have this particular thing about across. Therefore it is a bar across a bar. Multiply with last. Which is. Maybe keep the bias now. What I will do? I will take this down again.

Multiplayer. I didn't even multiply by. What is that? Crosstheborder.ca

So I can write this as scalar triple product now this. ACC. Excuse me also be happy because we and we are safe. This term will be topped off etc.

So I have. We bought minus BC mean. We bought all three vectors are different here, all the characters are different here. But now. Because this is Pfc, I can rewrite this as Pfc again.

So if I want to rewrite this as PC, I have to swap this like this. This this first I will take PC here. BC.

So posting this switch. See here. After doing that we will again switch from this to this place and I have to switch from this to this place. Cyber don't pull transformations which will make this particular vector. You bought. Or you can do the same transformation on this thing and you can get this email by doing the same thing.

So now what I got is bar plus B bar plus a bar plus B bar cross bar plus C bar cross bar. Cross C bar is equal to this, but this is not the end. Still we have the dot product when we bar plus C bar.

So we will take that dot product. We have taken a dot product of this. This entire square bracket is nothing but equal to the scalar triple product of the. Bar dot. Do you wanna go see? Product of these things. This particular thing is plotted against three bar. Now you can easily see this. The scaling for us. Now this if you open this dot product it will be. Plus C bar bar bar. Brightness. Not be bought. Minus C. This is what part of? Box. What is the condition that is given to us beginning? Equal to mod of C.

So this particular down. Corrected as it is quantified by zero. This particular thing is. This particular thing is equal to. Let us try to solve something. That was trying to try to find something like that. Let us come to our standardizing.

So give it. Eva. Standard.

So we buy. Minus. See what?

So you see, I - 3 zero minus. Given. The bodies are like that. What's that? This is also equal to scalar product of C. Find. Bars quite exciting. Now let's just try to reevaluate the coefficients of using the conditions that are given. Bar bar. Is important. Please. You are taking this dot product and it's the coordinate with multiplication.

So this forces. Model 116 minus 6 minus. This means $X - y$ is equal to zero, that means. And as a first tradition, then you are also given that the scalar require product BC.

This is also important, saying you can write in the standard coordinate. ZERO 1 - 1. Something they don't want. Playing this one. Thanks.

So what does this mean? This means if you graduate. Yes. That means. Why is doing? Also, it is given that bar is a unit.

So far we have not used that information. Model. Which is nothing but square.

So then I can say mode of the square is also equal to 1, so. Twice. Now substitute from this start. Why is equal to its square root? Minus 2 because I'm squaring. 6. Square is equal to 1 by 6. This forces. How you use this information? What is new? 6. I. Why is it? Exchange. 2 - 2 X. The government takes common what is plus or minus. It's just done. My name is this. We are just use their definitions of thought. The last and then exercise. Suppose treatment is.

So basically you have been given 3 vectors. You doing. We talked about. Consider the positive,

So here what we have to do is we have to meeting out of every. Cross the blue Bar is a vector. Vector.

So taking a dot product of covectors?

So instead. You bar dot bar package first. This operation is done first. And this is a scalar. Taking a dot product vector with the scalar. Doesn't make any sense that this is wrong. Statement doesn't make any sense. Without a dot means it's a scalar multiplication. W Bar is a vector. We are multiplying which is Q bar dot. This also makes perfect sense. What is the third statement Q Bar cross bar not W bar? What is V bar dot W bar? Is it a vector or a scalar scalar dot product?

So this is a dot product. Cross product. Scanner.

So on this recurrent statements. Correct? We have actually seen. Product the number. It was hard to examples and we tried to understand. Product contractors you must have gained something. Thank you for watching.