

Welcome to the. Series this is my.

So what we have seen. Because of two products, that is the scalar product and the cross product. You're seeing the geometrical complications of all this, and now we are going to see the products of more than doing this. This are four vectors. Then what are the possibilities of vector products? What are their geometric interpretation? And then you'll see some properties and some fuzzy quences and some problems based on that. You know, let us start with the. Product of feeling this.

So let us take the title. According to more than doing this. The cross product supposedly is a vector is another vector. We know the meaning of the Class B and also we know the  $10 + B$  is affected.

So once it is affected, then now assume that to see the other victim, assume that see. Let's see if we see that. Main thing like this. And we know that they trust me selected. Therefore now I have. I think the doctor to see then there isn't. There are two possibilities,

So either I can consider product with this product. I can consider the same trust me. With the. That's correct. At the same.

So these are the two possibilities we have here. This is called. This one is called as scalar product. Scattered product this is a big tell me a brief list to see the scattered product. Start sequences, let us see and then we'll go on to the scalar vector scalar product. Let's see what it is, what it means and. What are the predictions? Properties of cost products. Number one. This. Yeah, the victory. Let us take of the our assumptions are APR ACR. You can get 10 vectors please plus B. I. Trust me. You said in the previous lecture that these three forms. But I don't like this. Intended. That means. I guess I did. This is me. Then if I. But you don't get the victory. Then you will really observe it from the right to see. But the observer the rotation will be in their finding clockwise since then, then we say that they see ABC power. Directions

So in this sense always this year we are dear to us. We will form the right direction. That's a very important point we noted in the previous and #2 about this product is a Class B. Some of it is giving the modulus of that is giving the area of comparative supposed to be and we are doing this. That it isn't receiving the. This is the victory. And then this same way, complete the program. Then it is simply giving the game is the area of the prisoner. Was that just saying? That distance setting.

So these are the two important points we have seen. Now we move on to this scalable product right across.

So let us let us in the ABC 3. The three vectors are 10 vectors. There are playing on the sea. As if they are made in the same brain, then the aircraft will be for particular to the brain containing A and B, and then when I click the product then that becomes  $\emptyset$ . So that's certainly interesting case. We know that this ABC no. And let's say this is C. Case. ABC these other three. Thank you. This gave me. I didn't see the BNC therefore. The identity system of directions. Then what happens? Then you might look at this aircraft being.

So let's say this is aircraft. But it is very clearly seen formal. Directions then this. Would be making. Like it was. The department observation is to see that it has C must be making. Are you? Everybody, thank you. That we create.

So this is a very very important observation, and in that case if I take. Then for this vector, if I take the dot product with the vector since it is actually the dot product will be always possible because this is between them is. Therefore, the. Let's see. Deposit I guess you. BC. From the defendant. System up that issue. Just stop listening. Just like that, let's stop directions. Let's see. Must be making supposed to take this. Let's say this is. This is me and say this is this is.

So this is warning system that the aircraft. Must be. And this is making. The civic seawings

So these are the three parts,

So in that case a cross B in this case. Let's see, it cost me. What's even negative?

So therefore, whatever it is safe transfer any three vectors CBC I can perform the same class. Negativity will follow, but how? The BCS? Situated like whether the former directions are there.

So you know, let us see this what is here cross because we know the product very well. By the definition of the doctor. I consider this as only entity,

So therefore it is the modulus in the modulus. For example. Then now if we look at this model, service is nothing but are not ready. We know that already we have seen this

modulus. The area of the parallelogram whose sides are this area. With this Microsoft. I have seen that. This is possible. You know, if we look at this is equal to. The idea of. Looking at the first three models of the customer, which is nothing but the area that. The perception of. See. Look at this quality models are seeing in the. This is nothing but the protection of seeing protect the CR. Put this. I love them. Here comes which is also equal to their once again properly,

So this, let's say this is the. Because the point, let's say this is the other thing. Wouldn't be. And then that's it. This is the. That's. I'm taking the prediction here. See. This is the. Let me go. This is nothing but. Where does the time on my? Let me call this. Police say. See this parallel to this this collection. The city is bad. This segment. Containing no, I'm just completely now I'm just looking at this product. What is happening to this now? In that case, what happens? Billy Ray look at this. Multiplied by this night, see. Nothing but the area of the photograph. Multiplayer. See. Let's see. Think of the presence of the perpendicular. This is the voice of the company. From C. The daily.

So the base multiplied by the height,  
So that gives the volume the volume. I'll put that. OK, the Facebook spaces that and then the height is the. Let me see which is the protection of the. With the. Will be at. Movie. And it is exactly the year Class B. Is giving. Volume of the panel. It will be. This is this is possible. This is true when ABC format fidelity,  
So that means.

So yes, assumption is ABC here. Remember the assumption here? Whatever I'm missing here. ABC. We see. Well, I know that this. Yes, supposing yeah bombing. Then in that case, the model model the subject. Let's see. The what? Thank you to quality. The same. Where you will be.

So therefore the speed by saving the volume across B. Let's see is equal to plus minus. In general, it is equal to the plus minus B, where B is the volume, is the volume of the. It is comforting to the case. The system minus corresponds to the. Is that on the left? This is about the topic. Generally, the notation we following for the project. Will be deleted. Square.

So that means that something that they see us in the CBC. Articulate. And note that this. BBC home. ABC poll the DC also will form the system. Product number one. BBC. Well, right under the system. PCR and it's also the CEB. Also informed the frightened.

So in that case, our ABC is getting. The speed at T is the same as because it is everything in the world is going to give the only model site service.

So therefore the volume doesn't change, and since the CBC is same as. ABC SPCA It's the same as seeing.

So what do you mean by? That's understanding plus long as they're ordering this, then the value is not going to change. The body will be.

So that's what we're going to do. Yeah, there's a particular piece. For example, we know about that. What will be? I like plastic. Dot. But it is also famous. What's the same as? Right? Do anything. If I eat. For example.

So there are really. This location.

So let us say that. The president said that when we get there. Like a space.

So it is stated that. Is. As long as I click on there. Did I? Some people right there. It doesn't.

So these are the three. Product how do you suppose? How to translate this? Yeah, easy. The first product and then the product we can directly. We can do it. How? Yeah.

So let us dealing with all the three vectors.

So the things that you say you want. Getting listing. See what? Just take me there. But you know that already. We have senior custody. Maybe this week. Type C1B3 you wouldn't. Minus 318 trust me. With this we know the C is equal to C C2C3,

So obviously the doctor. Take the product submitted

So that case it becomes. See what takes the first component. 3. 2nd. C3. We can. The qualifications, of course, has been CBC. See what you see. We expand the determinant with this in terms of the lost. See what seem to be accepting and this. Saying is equal.

So that book.

So they trust me. That of course will appearance on that. And also we know that. We can see the CBC. Value minus one. For example, if I take. BC is it same as the BC because. First, we are writing the B vector and then the same vector. We have multiplying. They state so. The value is. Let's see some other properties.

So go scroll up the vector 16. Security. We see. What's the condition? But in that case, either suppose. CBC. It's gonna do. What's the temperature? And you know that. Yes, suppose two of two of the things so. Screw up the Harrises. The two of them. What you saying? This also. Will be equal to. Put everything. Supposed to one or two? We need to deal with this. Any cost?

So simple. Order to level. The condition. The solutions. In that case. ABC, we know that it is giving the volume of the value. What do you mean by suppose if the ABC is equal to 0? Equal to zero? What does it imply? But I did that cross product and then when I did the product what it means is ABC. Let's say open. What it means is. Let me talk to you like this or like at the same time there is a property that is going to attack. The combination of the other two, for example. Like this I can bring the CSA combination, let's say that. There must be a combination of this. What is CC now I'm taking sides. Dogs see. Of course. Obviously. Please. The product that they have. See.

So therefore.

So therefore. OK.

So that's everything. I just right but. Let's say. +3. You see? Let's play then. You can just see that it was. That makes the. Playing today just to do a list. Let's take one. Best boy.

So find the value of. Like the previous programming. Secret. It's not about product. And come back. Ohh wait.

So what does it mean?

So let's say convenience. See. There is indeed is this product. There must be. ABC. The cross product calling it the total product product including

So what is the meaning of this? From this definition of being. But also pleased that particularly

So therefore the same place. Particularly across the. Also, is perpendicular to the vector. Why do you trust me? What is the meaning of being trust me? Please perpendicular. Meeting yes. The thing that they. And therefore be like.

So what it means is. Do you know all over the place? Containing particular. There could be delays on the train containing. These are already, we know that the generator is a combination of. Population in this sense. Is equal to. What's the meaning? So. What's at all? In the weekly I can we can know this. That's what we want to find Alpha Beta. What I do is I take. We know that D is self a particular perceiving. Both sides. You don't see the speed on both sides. Something in the dark. What happens is that. This is equal. You know what things you have seen. Those things. I don't know how to sign. No way. It's the same as alpha. They don't see anything. Types. What do you call this? Someone, that's what. That could help. We have

So therefore you trust me. How do you trust me? Goodness. Is equal to. Trust me. Is equal to. So. Indeed. That this. Minus. The first product. You know that.

So simple. Because. I choose my favorite. Along the side. Through this the hearing. On the right. We are going to do. Is that you? Might even be equal to. There were some things that you. No, I'm waiting for the day to day. In the face. Contraindication?

So that means one particular point. Nobody can write the beat. Combination of this idea and some free one night.

So this is the. Chasing in the playoffs

So that it is perpendicular to. They would like. No, I'm going to the game like that, which is something. Deciding.

So that this. About that gazing. Well. Games. Hey, call medications of this. It seems like.

So that the city. All these values. Already we have. The. Me. Finally. Let me call it. This. That just made. See what? The other side. Speed up. This will be the same. That when we do see. Play. You know what? By looking at this this. You know what? Mother. Yeah. You don't see. Be. Speed up. Important expression for the, just use that. Because just the. Minus B. Beyoncé

So that's all. Problems. It's always this important. Is not equal to. It was.

So yeah. Because. Is working. Because because. This is. We will see. Crosby is equal to minus one because. Equal to minus something. If we look at the, the difference in this place. Dark. As well as this. Beyoncé this is this lazy. This contains. This is a good problem. It's a very. It was because. I'm just testing this. Because see. See. Classy. Close. Zero is affected. About these things. Just you operate. Probably about. That's it, this is the. This is me. You know that this is the prediction. This is nothing but this.

And what is the? The other. Look at them. What happens is more because.  
So we write them. Water bear. Is equal to. From there I reported. What is the projection?  
They should know of what we are interested in the prediction.  
So this is quite. It's a quantity. It's a skill. No. Projection. Yes. I just have to  
multiply the what is the? We're doing this. This scanner multiply this body I get. Here  
are three. Buddy good money.  
So this is giving the protection. Alright. Better. What we are interested is there. With  
that particular component component. His name is minus. But really? Please give us the.  
Subtract that. This vector. From the meeting. Minus 3. This is the. Device. Like this?  
What is good? And I never. There are monies.  
So this is. The easiest one was already missed quite a bit easier. Find. Pop it up. Let  
me call it. Let me take this course. Service is equal to. Minus. Then we know that there  
is nothing but. You know? Minus. Is equal to 0.  
So let's get this. There you go. There's nothing. But when you. In particular, component  
of the. We have seen the properties. Thank you.

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