2nd Lecture on the. But these things are failing. What the victor means. Addition, subtraction scalar multiplication. And then we also have seen how to represent vectors in an easier way. Introduce the coordinate system. We have seen some problems based on that and today's lecture. Let us focus on the first before we go into the next topic. What are we doing? Points and then we go into the the major focus today, which is the scalar product. Like this? Yeah. Never forget the director. Will never be. It is specified. Also we have seen in level discussion all the reactors are specified only by installing. Say that he says. And when I say when I say directly, for example, if I call this. This is a test of my direction. This. Where it is located? OK,

So therefore the AB means. For example, if I take same but parallel to this with the same length, both directors are same located in the different. Face. Both are still considered as the same workers,

So here we are senior. Same distinguished between the heavies and the same. They are the same, the same direction and also we are seeing that we have introduced something called the magnitude. Of these with the bottom up at the top,

So this is called the magnitude of the vector. It's also called the magnitude of. And generally, we also represent any given winter, making this small letter when I specify the direction we write like this, for example. Having the same directions. Let's see. Also introduced some types of greatness, namely equal thickness. It wasn't this. The directions of the vectors are equal, but also the same. What do you mean by that is called a 0. We have the number he called the police. I take the victory which is called the trail of is called the. You can also call it as a position. It's the IT says starting forming. It's the initial point at this point. Does that like things and also you'll see. Is equal to 1. It is called,

So in any vector they can always find that. And how we increase the? We have seen that is if I have a battery. We call this. Yeah, I like all this. What we do? Things that are. In our case, we we don't distinguish where it is located. What we do is we give both the vectors in such a way that the. They love the 2nd. Was.

So now this also is equal to being according to our assumption.

So this is the victory. And what we mean by the Triads doesn't. Right? According to the law.

So therefore this complete. For example, if I. We see that this AC is nothing but the addition of this. This is some of the. The same way. I have a. If they have the victory. I found them. This. Just stay up. Just like. This. Perfect. This lady is pregnant.

So there's one back. Everything. And then this already. We have seen this PC here. And. Maybe? The B

So AC is equal to a + B. And BA minus. We understand that. Similarly, seemed as the other multiplication by already then. It was in favor of it that he and the captaincy is the same direction. Maybe maybe this doesn't matter. This is called. With the. HPLC. In the easiest way to create a list of coordinates there to coordinate system. Remember we take the third adventure and coordinate system. I think that this is the. And delete the direction in the positive direction of the X axis, the unique. I think this is the origin and. That was the day that you.

So I instead of writing this information simply I right the letter I. Similarly CJ is a unit vector, K is a unit. Negative point B and point BB. Let's say P is a point XYZ and we know that. What is in this before is that the Conference of the Fight. Without the setting that. If I project it. On the way, please please. Protection by the speed and then this way. This. I remember this. That it might take this. That this is where it's just like this like this. To avoid the confusion. Yeah. And that's what this. Project. These are not related. I know here at this point. Read this. And. This that is all. Open vector is now. If I increase this idea then this automatically the B is nothing but. Be this piece the the link between the original and this point. OK therefore would be would be is equal to. Because this this legacy I I I. This is seeking. Equal to. I just think this sector is called.

So that's what the question of. That's easy. This is the position of the.

So I can resend the file by simply the coordinates ABC. I was speaking and we call this say I was speaking, but there is this. The position right there on the bike. You like this. .3. Say this system. If I take any two points maybe? But being you. That I know that. Here. Once I am given the points P&Q that I know the question return of B and the position return of the automatically. What we are interested in the line. The dining is. Speak you. This is this is this is this is what we know. This is the. This is the

factor of the five three and this is the position of the five. Therefore my vector. This video is a constantly working minus,

So this is what? You can be represented in terms of the position.

So that's impacted. You are already somebody around that any vector can be represented. Because of the position. With this understanding, it will be just you only problem. And then we will go once again. Stopping suppose they let us take the. Something like this? Say, let me call it a CD. I thought that. Let us say that. Let's say P is the midpoint of the line. 37.3 degrees this thing in two parts in this AP is equal to the AP is equal to PC, similarly here. At this point, you is dividing deep into. That is the midpoint of. We find them. How to represent this PNQ? I will explain next and now for this problem. Just if you can just say that P&Q are the points. Are the libraries summit point out? Now let us show that. Does that make you familiarized with the? Instead of a space of things. So that. I know that you know what I mean when I say. Maybe believing. Let's see. Perceive. Just to see. Is equal to. The beach. Thanks. Baby. Amy. This. Anything?

So already we know that how could represent the behavior because once I know that I can write the AB as a. Because of the.

So let me take the left hand side. Movie made. Similarly, 84. You might just. Let's see this. There are. Positive things like this.

So therefore it is equal to. Hope you will be accessible period. They will be. And then minus. Ohh yeah. We'll be responding. The same thing like this. Other day. Will be process. 40 is equal to. Easy. It's two things. Because. Decided that letter. Leave the soldier. I take the average of these two. It is equal to 1. Of the system. That will be this only. Same with. Correct, it is. Face.

So that is 4 days. Thank you. Which is equal to four times. The question is how to? For that. Coordinate geometry by the study. 2.3. Could be one. What do you think we are interested in?

So let us take a. You might say with me, call me. That means that we know that this generation of the five feet. They will take. Why you calling it takes 4.2. We have a. Origin. Hope you. To help. Let me call this OSRS. Would you want anybody? You know what? Just to kind of. Speak. No, I'm making one fight that device. Ridiculous. Is the ratio for all devices. Anyway. You wouldn't voice. All the device. In the ratio.

So if I take the point, then this CCL and this is used for this. Federation.

So let's say the coordinator. Quality takes place,

So therefore what I want to know is only this. I want to know what what, this or what? It is no intermediary. My personality disorder is given by. The point out is, you know, like.

So the coordinates. It makes noise. What's your legs? You know? You know what you want? Help us here. You said what? But still. Coordinate of the point of its device, the ratio. No more is equal to. It is equal to 1 by M Plus legend. And then I'm writing this letter is I. I'm just combining the.

So this is one way. That's what you want. Company. OK. Composite is going to say. Plus makes the best of the year. I. That's it. What is this? This is nothing but difficult. This term is nothing but. The point. For this sequel. Yeah. I certainly have. Let's face. Now if. Is equal to OK in particular,

So this is

So if I want to write. If you want to find the point which divides the point right? They're quite Steven by this. Might be anything.

So it takes on.

So in particular. Didn't hear me.

So in that case, what is happening?

So go on that our becomes summit point becomes. The midpoint of. Therefore. All these all these given by. Bodies. This is equal to 1 by 2. Because.

So that when we need help and just go back to therapy. Will be there. Artwork. You're ready to find this. Question mark. Then the fight is given by simply. Because this is. Because I did the previous problem, you might see that. According the movie plus body, the midpoint is given by. Is given by. We'll be there. This. Information. Also recall what we did in the press. Ordinance. Take a point. This is pointless. BBC. Exactly. We know the meaning of everything. No, I don't say you predict because they. This party and just think. No equation open this. What are you? What is? OMB. This may represent this this release this. Open. And then let's say. I thought it's a positive direction of the X axis. Positive direction. And then. Sissy movie makes the connection. Delete. The

direction of the way exists. Similarly, that would be mean. Comma with the positive direction. No. You just look at the this trial. Despite this look at this triangle. Which is that right? It might be and. Yeah. Hospita which is the let's say. The borders of movies. And possibly that since this is. Being

So crostata is equal to B by far. Something cost gamma is equal to the figure. I can see gas gamma is equal. Seaway. And similarly. But imagine we can just verify that class alpha is equal to a by. No. This is the summary to write the. It's a. Consult. It was equal to cause of. Cost me. But it is easy to see that inspired. Yes. These elements are called. Direction. Quoted. Direction. Of the point. And the company if I. Because no one can see. The. Equations. Yeah, it's equal. Do you think? Yeah. Beijing. That's easy. This is ABC are called the direction of the ratios ABC. But point. What we have this year. Yes,

So it must be. What?

So there are some questions and direction. Eight point in the space. We know that. Like what the unit this will be. The unit that, in their opinion is that directly is that look at the components, the components and the direction it was saying something. Point. Any point in this. They take the components of any point in this they are called the directions for directional basis, but fortunately that direction.

So any given might be remembered, the direction cosines are simply the comfort. The components of the network. What are the directions? That this nation.

So that actually goes into just a couple days twice. This understanding let me just. It's OK if I take. 452 minus one and two. Let's say this is the personal space 2 - 1 and what will be the direction to sing?

So for that we should know what. This model is.

So that. Had that.

So they exist. Cost, cost, cost. The conference. The sequel. 2.3. So. The Deadpool OK,

So this is the point. OK then this this point. Call you. This boy is equal to you. Ways that, like the new the newest. For the sake of this case.

So we know that

So many given vectors, and we know that you can. With this understanding you know what it is called. Maybe? Equations, equations. With that information. Write the equation of is an easier way. The product is noted as said because, you know, we can increase the equation of the line. To find the equation of the line, what we did is we need. That **** up. We want to open. OK. And better self. Because. What we also need is we need some foil. What is the price passing?

So if I know the point and the direction that I can uniquely I can, I can uniquely we can specify that the equation of the line.

So those cases. Play. The English. Sorry. Body. God. Two dogs let's say you know himself that we have discovered that the voice. Ladies first. I know that you will be effective,

So if I know the direction for size then I know the unit vector in this direction. Let U be the unit vector in that. Beauty. That we bought the latest. Delayed. Pause.

So what we have? 620 hello. No leave please. Make any plans of the bombing. I know that I know it is possible. Color. All is equal to. If I take the. Calling me visa. OK. All is equal. Please, because I know that you. The unit that would be asked to be some people. Thanks. That we're auditing the case.

So this is the. Created points that is. Jason. We are making the difference. White people straight. In order to stay in the party that has taken General Point.

So don't be afraid. Language. Some other, some other given point. Like the point is that we take this.

So beautiful.

So the five piece. I think that this is the. But and we know that. Which is the character of. 8 plus. Yeah. How are they going? Arbitrary point here. Now if I take this. When they say. No.

So we're being, you know what you doing OK with that. Language of your passing. The. Different colors. All is equal to. This is the point being that our is equal to 30 or is that? All is equal to 1B plus. Speak. The pod is equal to plus. Bob let me call that quick because since it is, it's a vector. Let me call it the. David.

So that's what this speed. That means what I speak you make you is equal to some other things because I know the unit vector in this direction. Unfortunately. Because they know they're different. Because I since I know the point, I can find a direction. Therefore we can always find the unit. Softball the real is the unit. The US. If I know the unit

vector along the. Fight the fight is given. This car is equal. The English on the right. What are you using? Trust the content of cases there first case where we find the find the equation of the straight. The direction is not given explicitly, but in terms of the points we can hear the direction to find the equation. Office. Plus the. Just like. You are there. This is true. That what is that? This is me.

So I want to find.

So yeah, no. They know that because they're in the previous equation, see the R - B. For this case. Is equal to. At the same way I can write

So in this case. Because here's the thing. You are given. What day? OK. We wait and see. This is equal to alpha B - C. This would be. That's the difference. Straight. Busy. That it kept. This might be smart. Be smart here. Even worse.

So this can be equivalently. Right? In terms of. But yeah, this is like this. Instead of. Speak. English. Straight. No, this really is equal. I can write this. Body. I can pick the right side. 1 minus. Plus substitution. Yeah. Yeah, wait. Yeah, yeah. That notation it is simply. Artist body. Speakers that's what matters. I simply are equality and also I can try. But it's. Albert there are.

So this is the. Stick.

So the question on the right is. Or is equal? The simpler way. Games, games. Is it really is? Minus.

So this is the equation that.

So let's say this that we take this example, let us say goodbye. Is there a delay? Still. Who is 451 minus one? Then in that I want to find a place on the right passage. Flight speed and Q and then they immediately. This what is the English

So you can find the English and the powerless by the English. English. Buzzing we know the directory. But it's saying that. They're pretty. All is equal. What are you? This is. So that there is. What? This. Let's type. Anyways. By by. Latest news. No,

So this is the English for everybody. Without this. Under

So this is the. Similarly I. If I would say I would fight B, which is equal to. I want to find equation of the right parties in parallel. Fight English. Select what are you. The equation. Because we know that it is possible. Because it is still. 2nd. Are you going to keep us always? Right? Let's see. Must be. Right? I didn't divide by the length of the. This is for everybody. English. The point was. Finally. That's like the equation. They may need the information,

So let us do this.

So quick. Guess what? We are interested in writing the equation. All that. Quality. You would like to see it. Information we have and funded the English department. Let us say this is the original. And we. Starting. The origin. Take any point on that. I think that's the extent that and then I can follow up. Might be. So. No, this isn't right now. It's a battle of the vector C and we all are playing at the same place,

So I can now file look at this question. Play hard then. OK. That's it. Despite this being there recently. Hello this is. There will be some drinks are exactly equal to the boundless of, therefore it is. So. Similarly, we also. We also will be. Now this is the equation of the equation.

So this is the equation of the line passing through the origin. Not at the score to the case,

So instead of the general point. OK,

So let us say this is the origin. And then they call this small seat and now let us take some point B. Nobody look at this point. We are now. I want to consider the collection of things that we see is instead of passing through. The White sea. I quit the scene. Then the equation of the brain can be locked. If I take down or open the point, see that the point we are arriving at the same rate.

So if I call the question then. But Siri? And. By the previous by the previous case, it is simply output. This. Equation. Therefore that is. To the Point C and parental. Similarly, I just leave it as an exercise for you. The case 3. What is the equation of the brain? Plugged into the given point.

So this is the original and we can call this.

So what would be the equation of the breakfast ABC now just I wanted to use this case to to find the invoice. Myself. The required minus. All this equals alpha. Plus gamma. That got mine is equal to. What might this sound like this?

So because of that,

So this is

So you can simplify. You can use the case. We can see. Equal to alpha. That's. Discover. Wake up is still like. And just see what we have seen and number one. We have to recall the definition of vectors and how they are traditions and the properties. And also we have seen how it is easier and easier to represent the vector. You know that we increase the coordinate system and with that we have introduced also the notion of direction exercise and direction. And then we also we have seen how to become the center point that two points are given that there even with the PQ that calculates the ratio. Here how to represent that new point? Similarly, particular case how to represent every point? Once we have the property and all that we are watching the English, English, English.