PfaffModule7L04

Fri, 1/21 1:52AM 5:49

SUMMARY KEYWORDS

riemann sums, integral, rate, exclamation points, picture, quantity, function f, axis, nonsense, approximation, theoretical, reasons, list, put, area, same thing, x axis, compute, process, students

SPEAKERS

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Welcome, in this section, we're going to go through the goal of Riemann sums. I feel like there has to be given a lot of motivation for Riemann sums, because students find them tricky. So let's go ahead. So one thing is when you have this kind of picture, so here, oops, wrong, wrong color for wrong axis, so I have, okay, so this is my X axis. And I have my Y axis. This one I wanted to do in yellow. Yeah, that looks like green. That's okay. Okay, so I have a picture like this, and then I have a function of Y equals F of X. Right? So you've seen this kind of picture a lot of times before, this is Y equals F of X. And then we're looking between A, some A and some B. And we're looking at this area in here. So this is like some kind of area S. Okay, and one of the points of Riemann sums is to find the area S, So find the area S. Okay, so that's one kind of thing that we're trying to do with Riemann Sums. And this is in fact, the same process as, so this is the same process as so this is, same process as when we want to go from rate to quantity, okay? So we want to go from rate to quantity, right? So for example, I could start with a function F, right, and then I would go to this kind of area under F, like we have in the picture there. So this is the area under F and these are actually the same process. And this might feel a little bit strange that going from rate to quantity is the same as going from F to the area under F, where F is my rate, okay? And this will be the same as having F going to, we're going to get all these things, but going to the, I'm going to put this red also, because it's going to turn out that this is really the same thing. So the anti-derivative, or integral of F. Right, which is the same thing as going to, right, we're going to, as I said, kind of here, this, but we'll repeat it one more time. As going from the rate F to the quantity, and this will be some kind of big F, okay? So, which is not, this is not the same orange as that one, okay? So there's this kind of this process, we start with the rate, we go to quantity, but these are all the same process kind of getting at the same thing, and we're gonna see that as we go through. And I like to say, so here's kind of my list I'm talking about. So Riemann sums are not crazy theoretical nonsense. So here's kind of my list. So Riemann sums are not crazy theoretical nonsense. Okay, and I'm gonna put even more exclamation points. I want to put more exclamation points. Okay, so here's kind of three reasons and these kinds of things, you're gonna hear me I see them again and again. One of them is that approximation is actually extremely important. And then, the next thing is that they allow us to see how rates change into quantities. So allow us to see how rates change into quantities. And we've already kind of, you know, we've seen the pictures for that. And then they help us to see appropriate integral to compute. To help us to see

appropriate integral to compute, okay? So this is just kind of, it's good to kind of understand kind of the underlying goals of behind what you're doing. Particularly with something like Riemann sums and you're feeling frustrated, like why in the world am I doing this? There's a lot of reasons why you're doing. Okay so I hope that made some sense and I will see you in the next lecture.