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multiplying, linear, exponential, amount, exponential rate, data, determine, approximation, adding, input, output, lecture, roughly, approximately, rate, chart, hope, graph

SPEAKERS

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Welcome. In this lecture, what we're going to do is we're going to have look at a data set or a chart, we're going to graph and try to figure out if what we're dealing with is exponential or linear on with just some of the values. So what's going to happen is that if it's going to be, so it's going to be linear because the real question is, is this linear? And you're going to get linear if adding the same amount each time. So we will get linear if adding the same amount each time. And then it's going to be exponential if we're multiplying by the same amount each time. Okay? And so then it's going to be exponential. And then this is, we'll test this, if multiplying by the same amount each time.

Okay, so let's first check if it's linear. Okay? And then the question is, is this linear or exponential? Okay, so the question is linear or exponential, so linear or exponential? Okay, so if we go through, and we did this ahead of time, and we figured out how much we're adding each time. So when I go from here to here, I'm adding 375. And then I'm adding 625. I have been adding the same amount here, 625. And then here, I'm adding 750. Okay? So I'm not always adding the same amounts, so not linear. So I'm not always adding the same amount, so not linear.

Right, but then what about whether it might be exponential. So now I need to see about multiplying. So to get from the first to the second. So I'm just going to kind of do this out here. Okay, so to get from the first to the second, I'm going to multiply by approximately 1.3. So times, approximately, sorry, 1.43. Right, I'm multiplying by approximately 1.43. And next, I'm multiplying by 1.5. So multiplying by 1.5, and then in the next one, I am going to be multiplying by approximately 1.33. So times, approximately 1.33. And then the last one by 1.3. So looking at these, you can tell that it's roughly, you know, they're not exactly the same amount, but they're pretty close, okay? So we're multiplying by close to the same amount, so kind of close to exponential. Okay. So multiplying by close to the same amount. So you know, it's roughly exponential. So could say that it's roughly exponential. It's kind of a good approximation, or good model.

Okay, so what did we do here? We were trying to determine, we kind of had some data and we were trying to determine is this, you know, something that's going at an exponential rate or a linear rate. And the way to tell the difference is if for each equal amount of change in your input you're adding

And the way to tell the difference is if for each equal amount of change in your input, you're adding the same amount to your output then you're linear, but if each, you know same amount in your input, you're multiplying by the same amount in your output, then you're exponential. And this would kind of be like your, the amount that you're, it's going to be this to the T or whatever, okay, is going to give you your growth. Okay? So, I hope that made some sense, and I will see you in the next lecture.