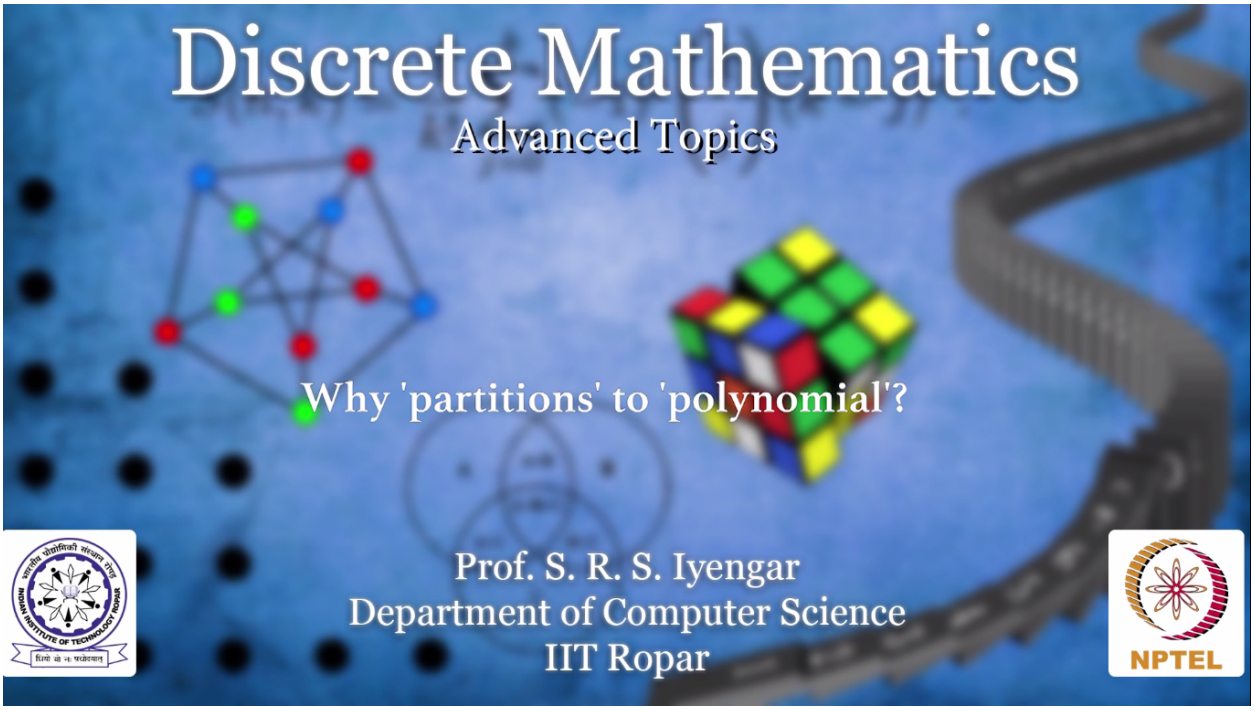
Discrete Mathematics

Functions

Advanced Topics



Why 'partitions' to 'polynomial'

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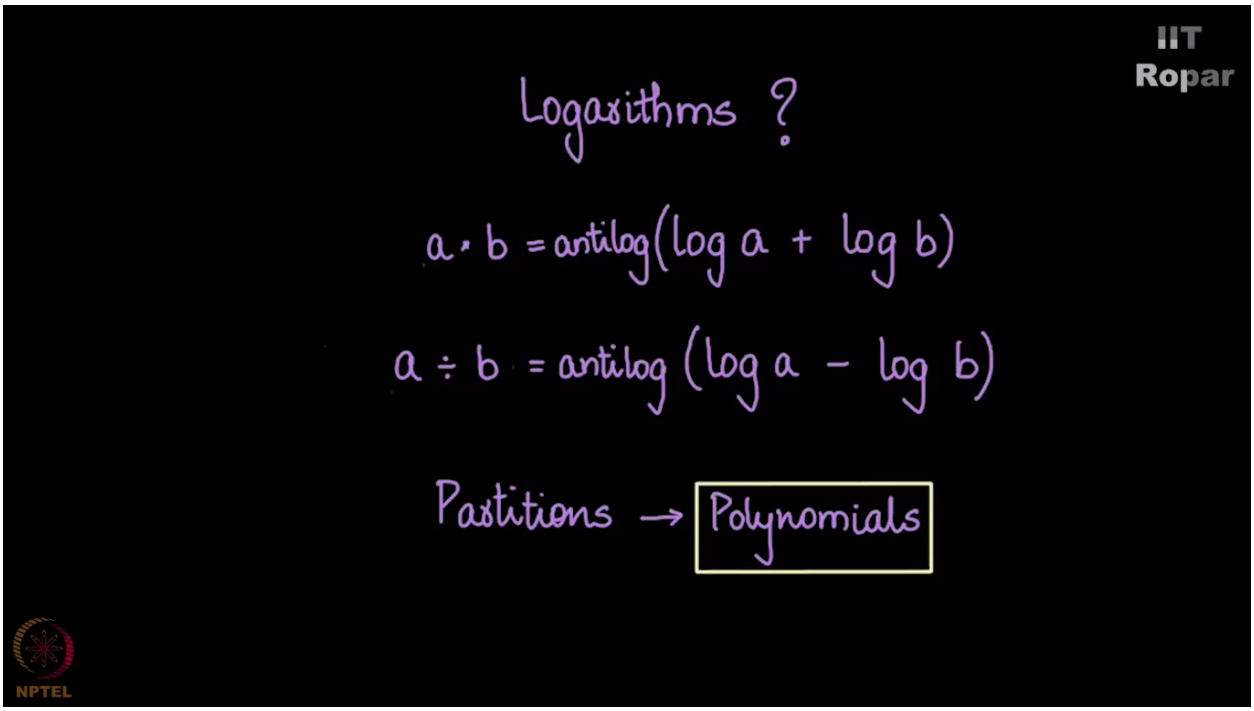
So what is the moral? What did we learn just now? Do you remember logarithms that you studied in your school days? In logarithms what do we do? We apply logarithm when you are asked to multiply two big numbers. And when you apply logarithm the multiplication question becomes the tough addition. Why? Log of A into B is log A plus log B. So you add them. It doesn't give you the answer A into B and you apply anti log there. You know how to apply anti log if you remember how we used logarithm tables. Once you apply anti log you will get rid of the logs there, log of A plus log of B and you will actually get A into B the answer itself.

So what are you doing here? When you are asked to multiply two numbers you apply logarithm and multiplication becomes addition. You add in this parallel universe if you know what I mean and then apply anti log and come back to your original universe and you are surprised to see that the problem of multiplication is now done. Similarly if you are asked to divide A by B apply logarithm it becomes log A minus log B basically you are going to the logarithm's universe here. By universe I mean it's a different world altogether. You are trying to solve the problem by converting the problem to something else while it is much easier than otherwise. And then you come back by applying anti log and you see that A by B is now formed.

So why am I saying this? Sometimes it is important for us to go from one universe to the other universe. The question of partitions becomes the question of polynomials. And you saw how we could solve the problems when we saw it as a coefficient and the expansion of these polynomial like things and then solving it there and we get an inference this side.



So it is important for us to connect two different entities. When you cannot solve in this universe. Go to some other universe and solve it there. I hope you get the point. Our point is really subtle and you will see many such applications in math and computer science where we convert the given problem to something else and go to some other world where solving that problem is easy.