NPTEL

NPTEL ONLINE CERTIFICATION COURSE

Discrete Mathematics
Recurrence Relation

Getting started with recurrence relations

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We saw factorial as a function, what did we notice? We are defining a function using the function itself,
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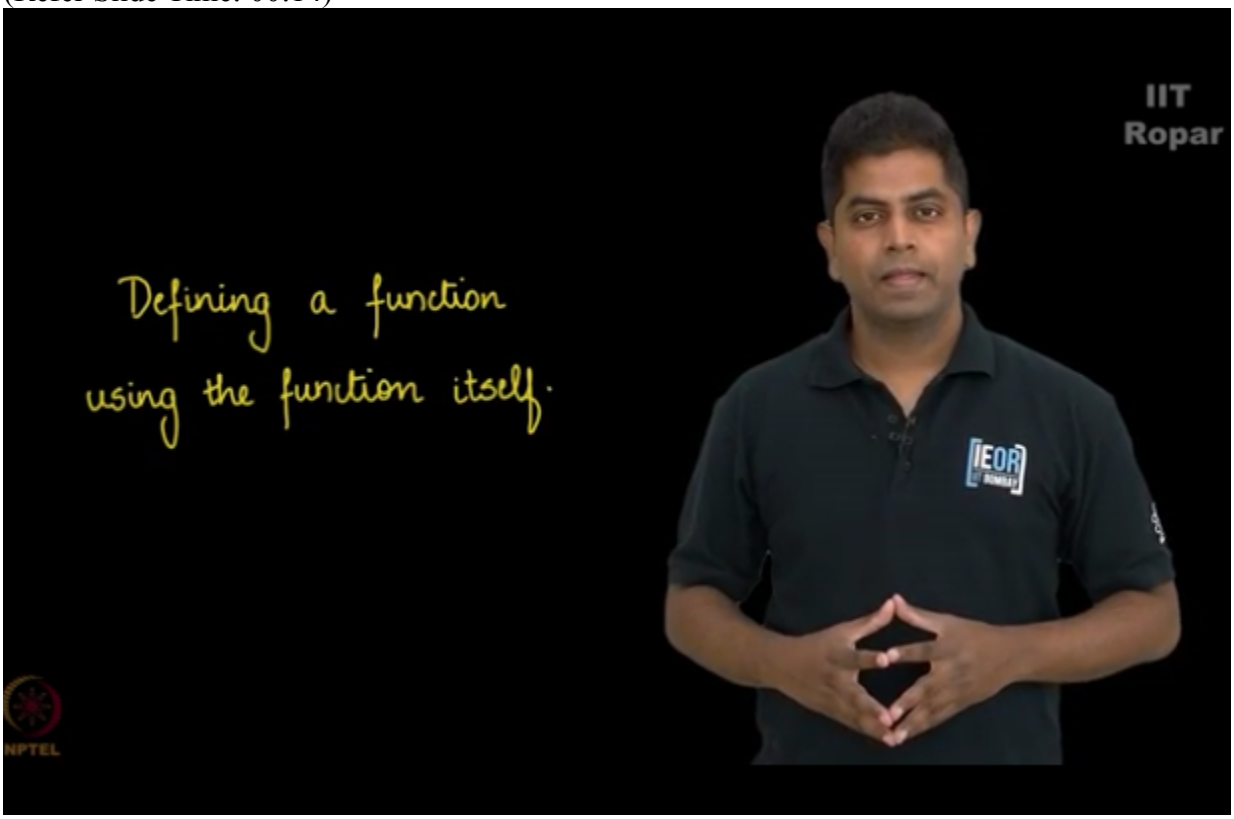

let me now recall something that is conceptually away from a function, let us look at a sequence, a simple sequence, look at this 2, 4, 6, 8, 10,
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can you guess the next number? What is the nth term in general here?

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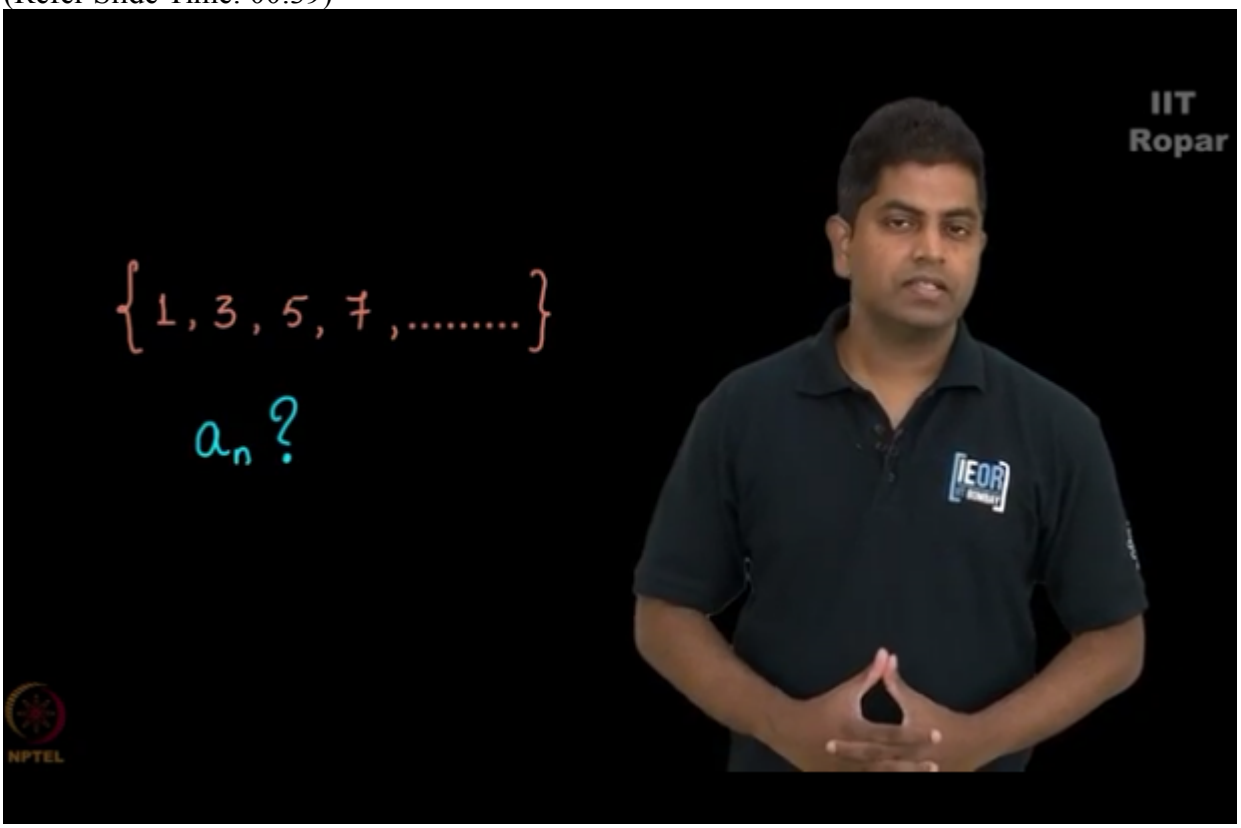

It is the term just before the nth term which is AN-1 let's say, if the sequence is A1 A2 up to so on, if you want to know what is AN, it is simply AN-1 + 2, correct,
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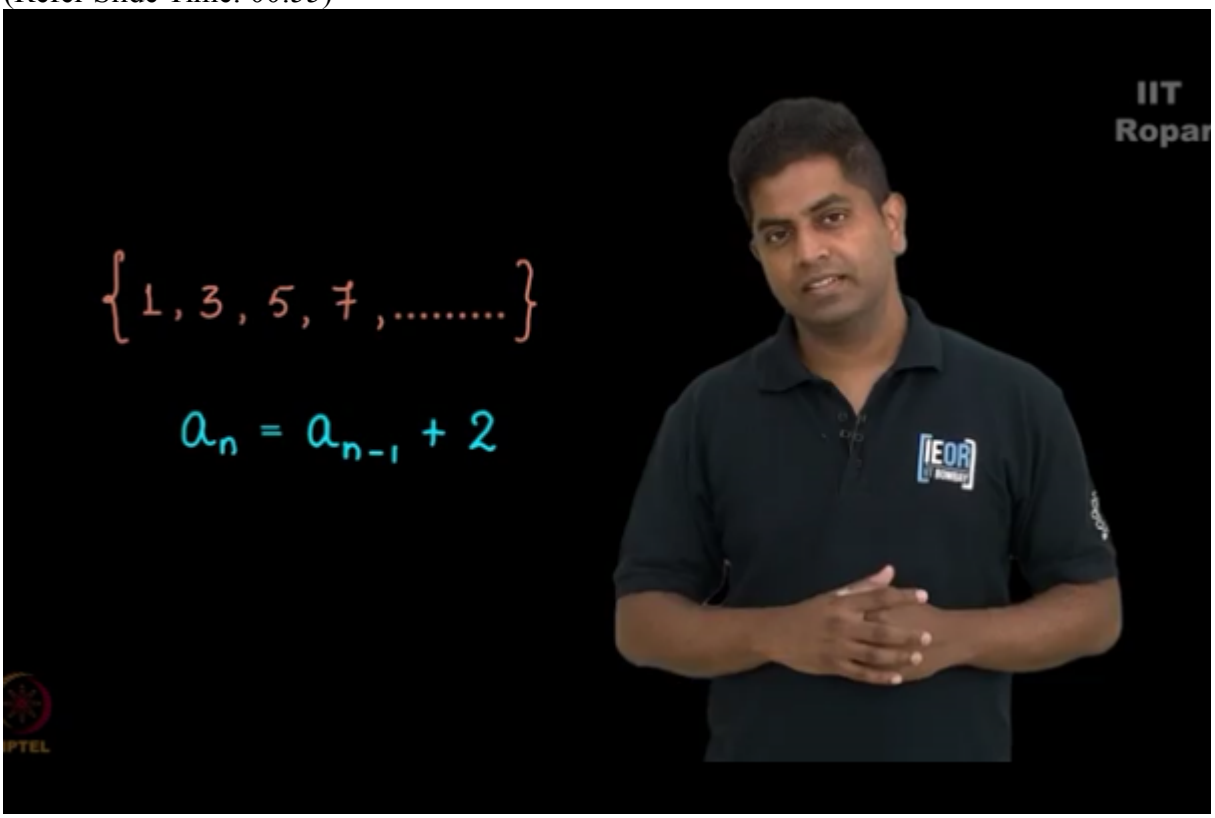

now you see something, to tell you what is the nth term I am using the N-1th term of the sequence to compute factorial of a number let's say factor 5 you need to know what is factor 4, let us look at the sequence fact of 1, fact of 2, fact of 3, fact of 4, fact of 5, fact of 6 so on,
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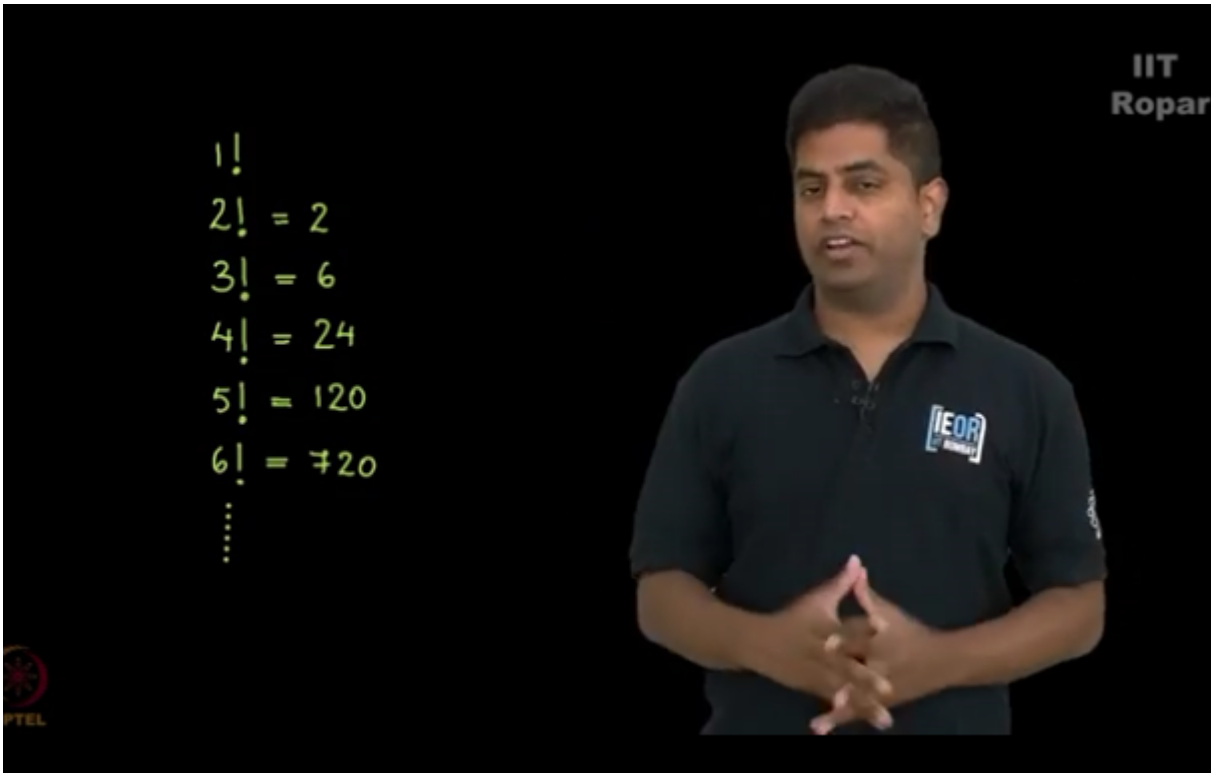

to compute fact of 10 I should know fact of 9, and not just no fact of 9 I should multiply 10 with fact of 9, in fact our factorial thing was also a kind of sequence.

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