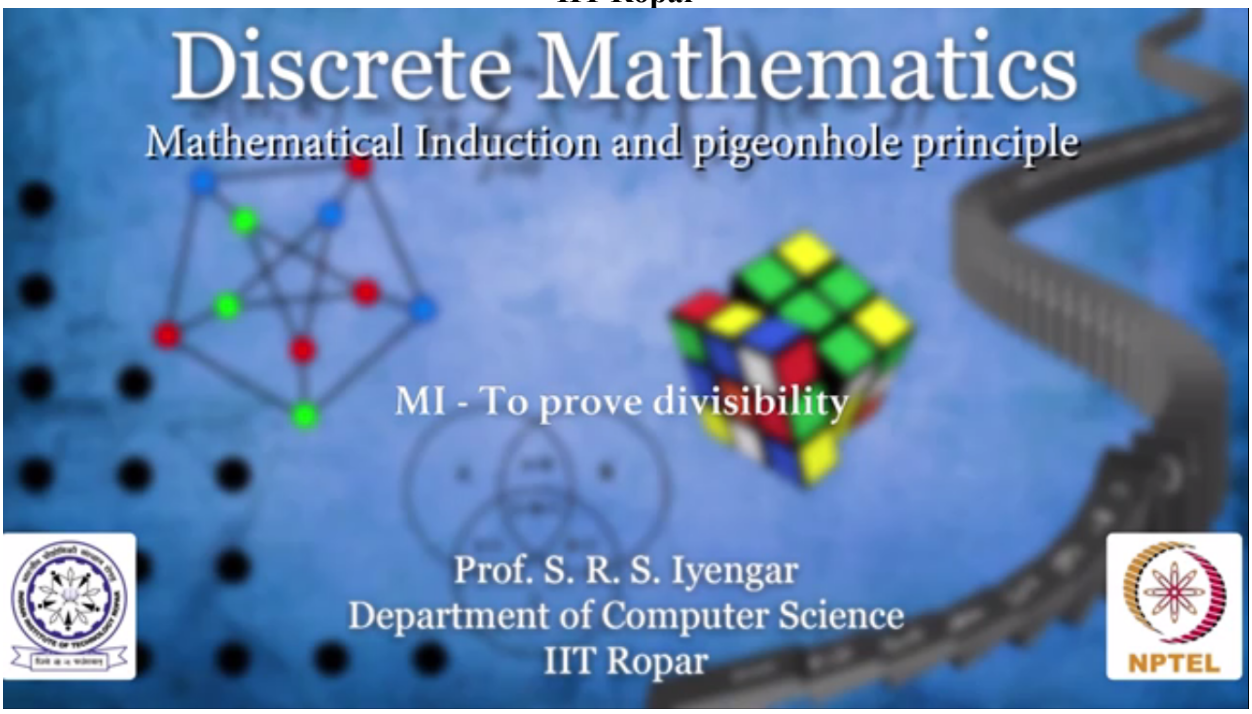
NPTEL
NPTEL ONLINE COURSE

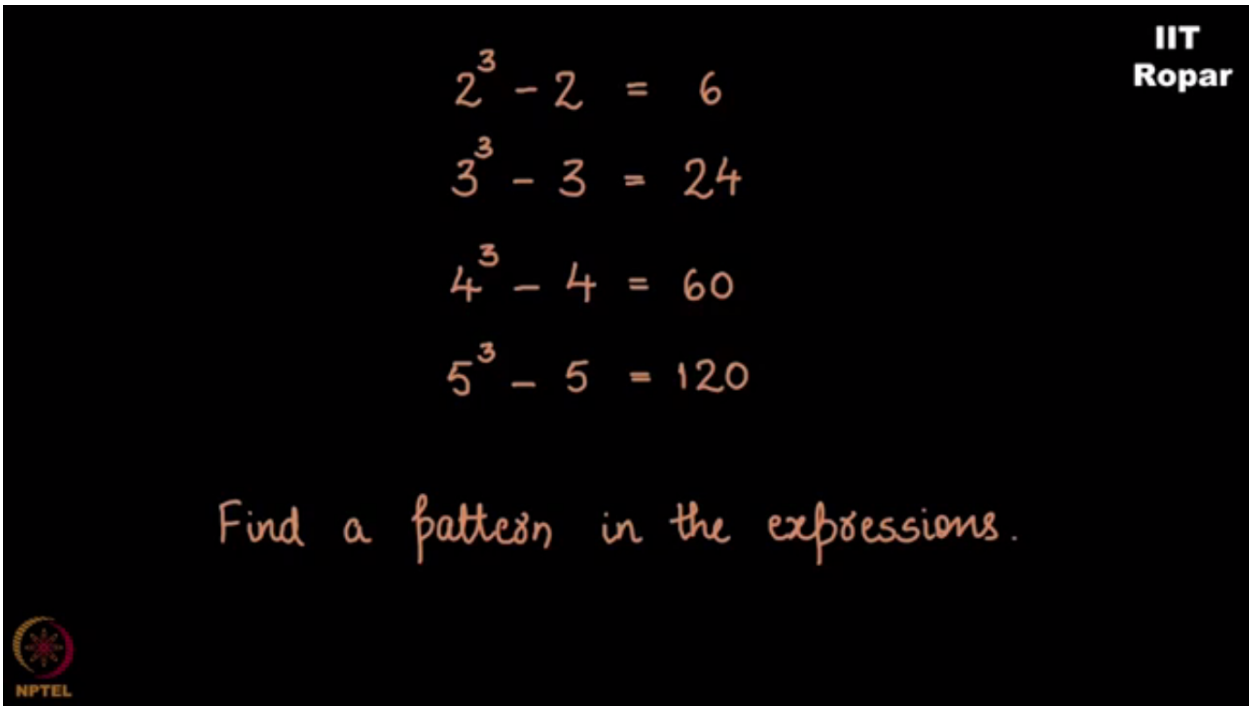
Discrete Mathematics
Mathematical Induction and pigeonhole principle

MI - To prove divisibility

Prof. S. R. S. Iyengar
Department of Computer Science
IIT Ropar



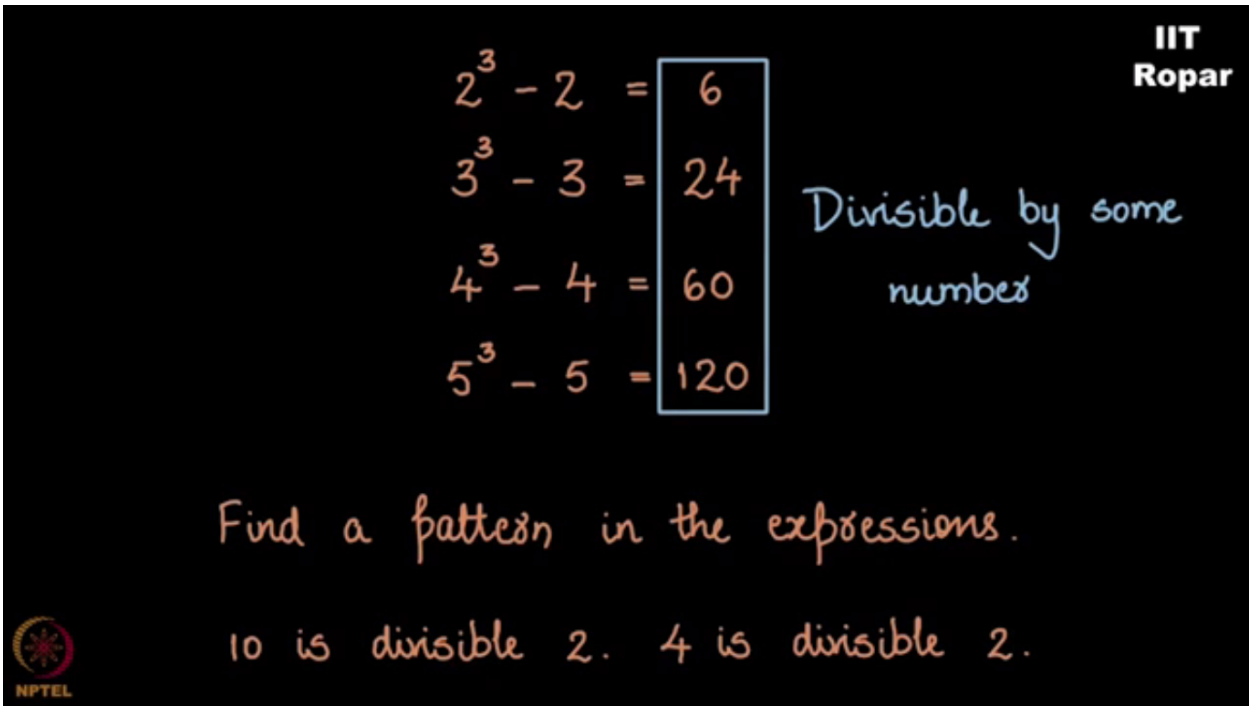
I am going to give you some expressions now and then follows a challenge for you people. Observe. 2^3-2 is 6. 3^3-3 is 24. 4^3-4 is 60. 5^3-5 is 120.



Now these are the expressions. You have to find out the pattern here.

Let me give you a hint. The hint goes like this. All these numbers are divisible by some number. Find out that number and find the pattern.

In Week 1, I had told what is meant by divisibility. I hope you are all clear with it. Let me give you an example. 10 is divisible by 2. Why? Because 2 x 5 = 10. 10 is a multiple of 2. 4 is also divisible by 2 because again 4 is a multiple of 2. Clear? This is the divisibility where one number divides another number.



So find out the pattern and find which number divides all these numbers or all these expressions?

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