NPTEL

NPTEL ONLINE CERTIFICATION COURSE

Discrete Mathematics
Graph Theory – 3 &
Generating Functions

Words and the polynomial

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Look at this straightforward question from let's say fifth grade, you all know how to multiply polynomials, look at this polynomial 2X + X square into 2X times X + X square gives you 4X cubed + 6X to the 4 + 2X to the 5,
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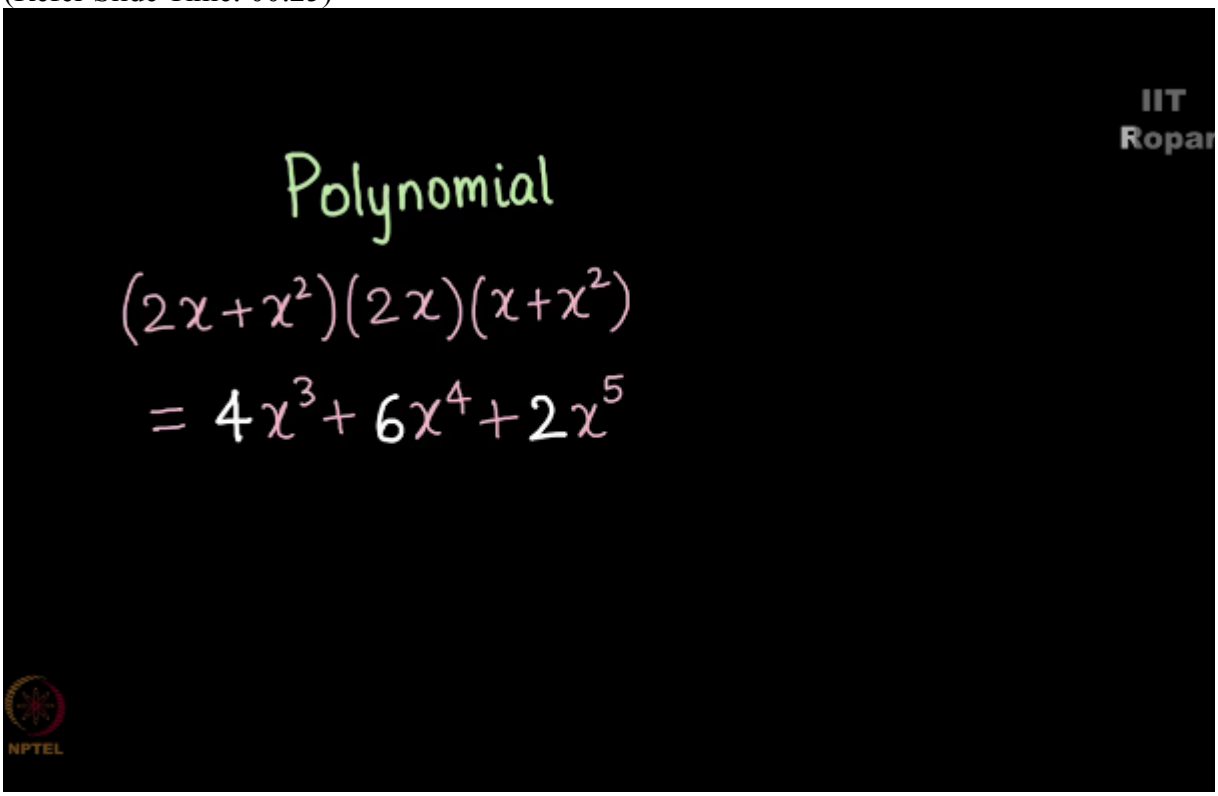

why am I talking about this question here? Why are we multiplying these 3 polynomials? Well this polynomial has something to do with a question that we asked just now the quad, quack, quid, quick question, right, all possible 3-lettered words there, where four in number sad, sid, tad, tid, look at this this polynomial the coefficient of X to the 3 happens to be 4,
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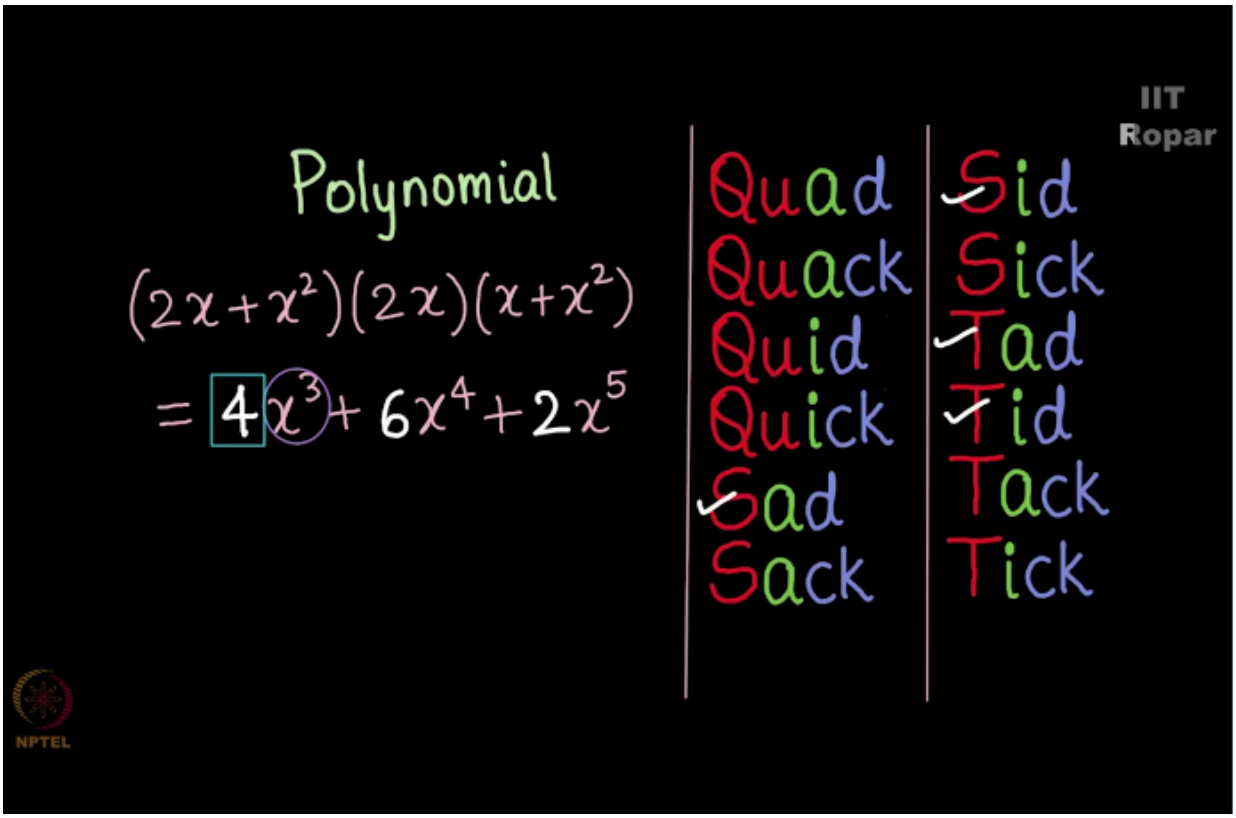

so all possible 3 lettered words is 4,

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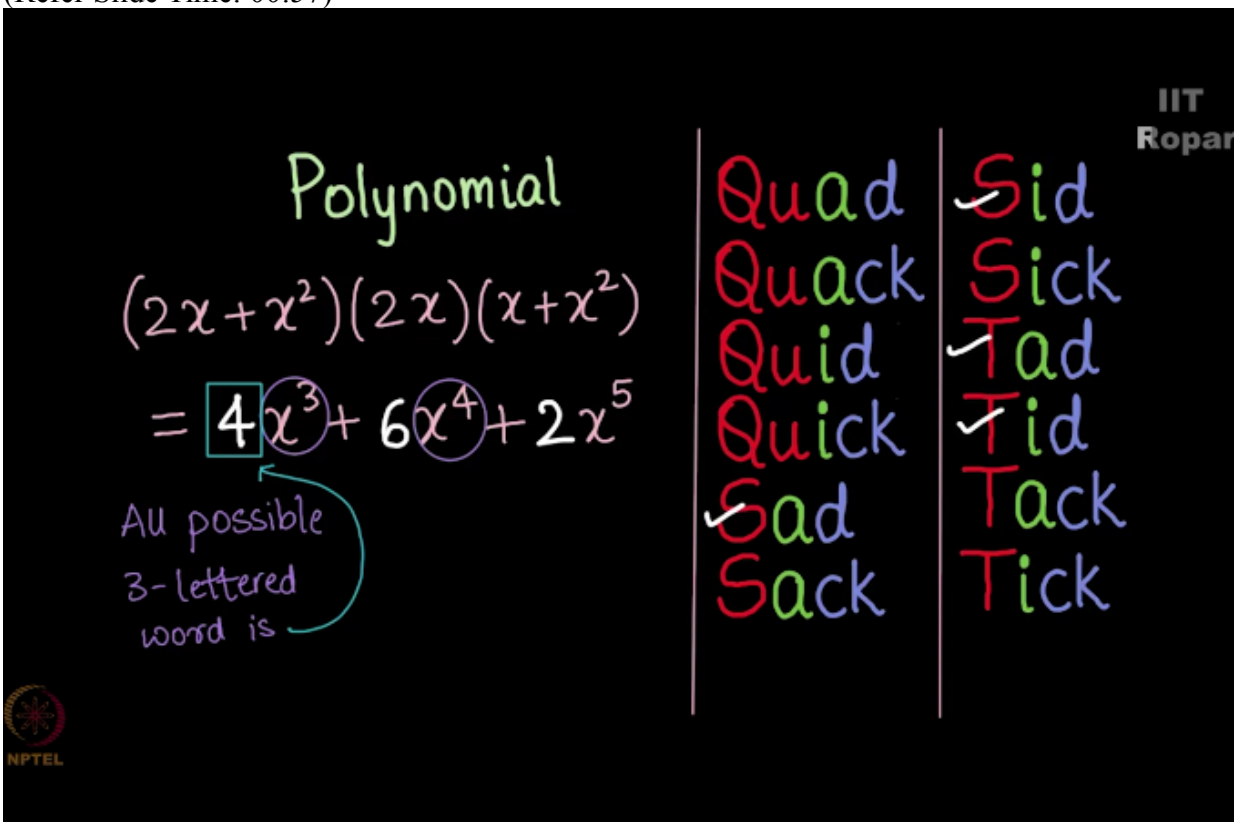

the coefficient of X to the 4 is 6, all possible four lettered words are 6 in number, all possible 5 lettered words are 2 in number, is it a coincidence? Or did I cook up some other kind of math with polynomials, their answers match has polynomial multiplication something to do with the previous question, it is really, really important for you people to pause the video here and see the connection, and not go ahead until you feel there is some sort of a connection.

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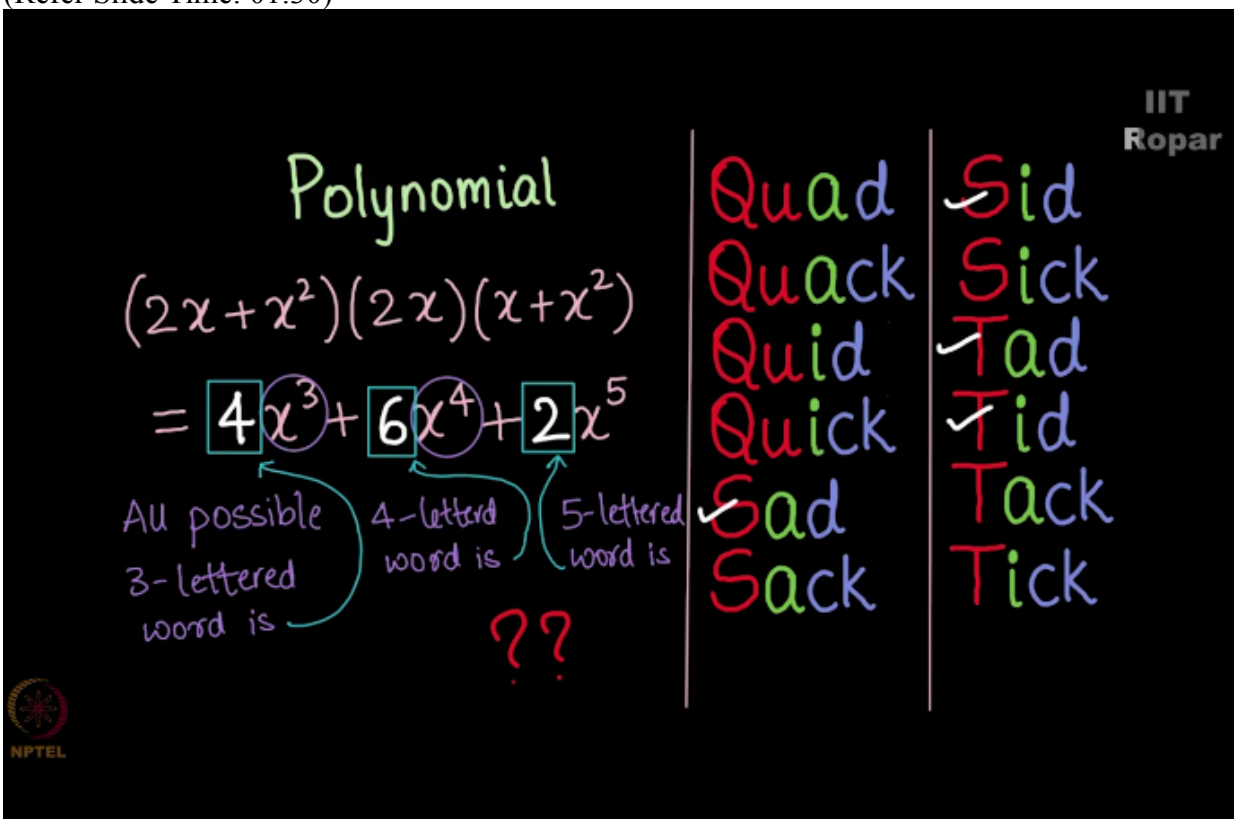

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