How many onto functions are possible from a set of 7 elements to a set of 3 elements, rather 5 elements here,
(Refer Slide Time: 00:14)
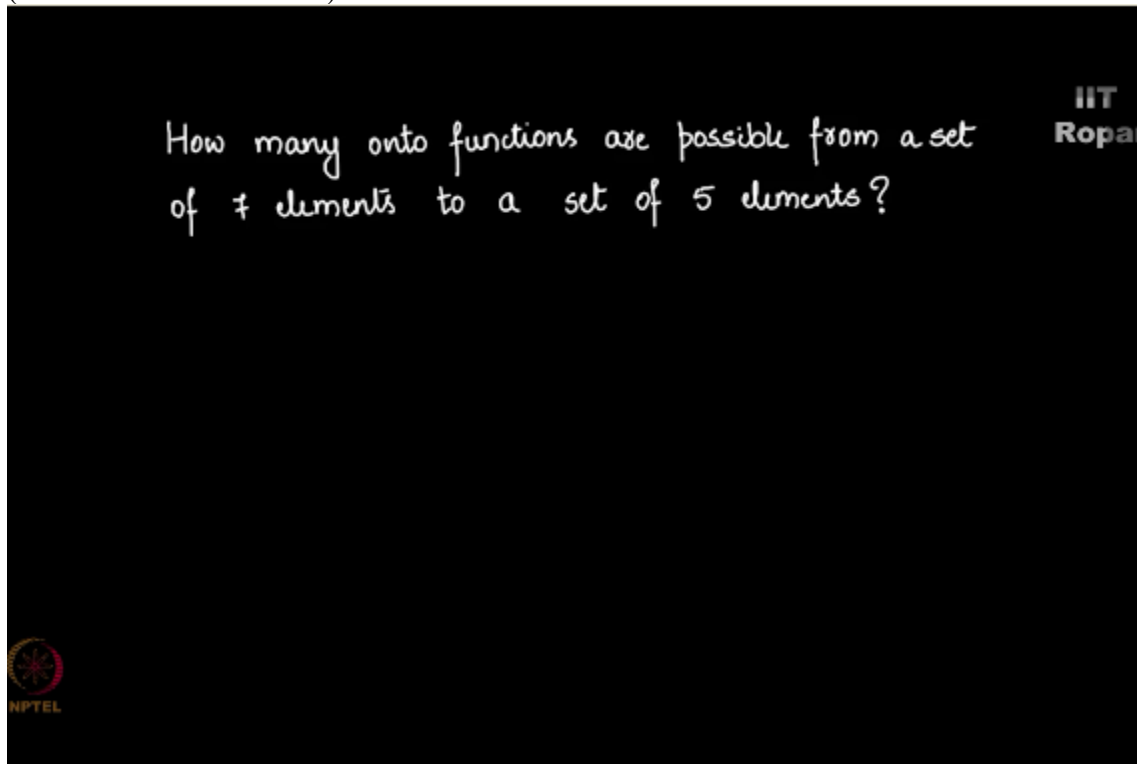
right, now you see the domain has 7 elements and the codomain has 5 elements, let's say there is a set A with cardinality 7 and there is a set B with cardinality 5, now the number of onto functions possible from this set A to the set B are 5 to the 7 – 5 choose 1 x 4 to the 7 + 5 choose 2 x 3 to the 7 – 5 choose 3 x 2 to the 7 + 5 choose 4 x 1 to the 7 – 5 choose 5 x 0 to the 7.
(Refer Slide Time: 00:59)

How many onto functions are possible from a set of ⑦ elements to a set of ⑤ elements?

$$|A| = 7 \quad |B| = 5$$

Number of onto functions from A to B are:

$$5^7 - \binom{5}{1}4^7 + \binom{5}{2}3^7 - \binom{5}{3}2^7 + \binom{5}{4}1^7 - \binom{5}{5}0^7$$

Now I have calculated all of these and let me show it to you, so here are the calculations you can probably pause the video here or in the previous step you can pause it and try it out yourself, you can work out all of these 5 to the 7 and 5 choose 1, 5 choose 2 so on and check or verify if you are getting the same answer, so the final answer is 16800,
(Refer Slide Time: 01:34)

How many onto functions are possible from a set of ⑦ elements to a set of ⑤ elements?

$$|A| = 7 \quad |B| = 5$$

Number of onto functions from A to B are:

$$5^7 - \binom{5}{1}4^7 + \binom{5}{2}3^7 - \binom{5}{3}2^7 + \binom{5}{4}1^7 - \binom{5}{5}0^7$$

$$= 78125 - 81920 + 21870 - 1280 + 5 - 0 = 16800$$

so these many onto functions are possible from a set of 7 elements to a set of 5 elements.

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