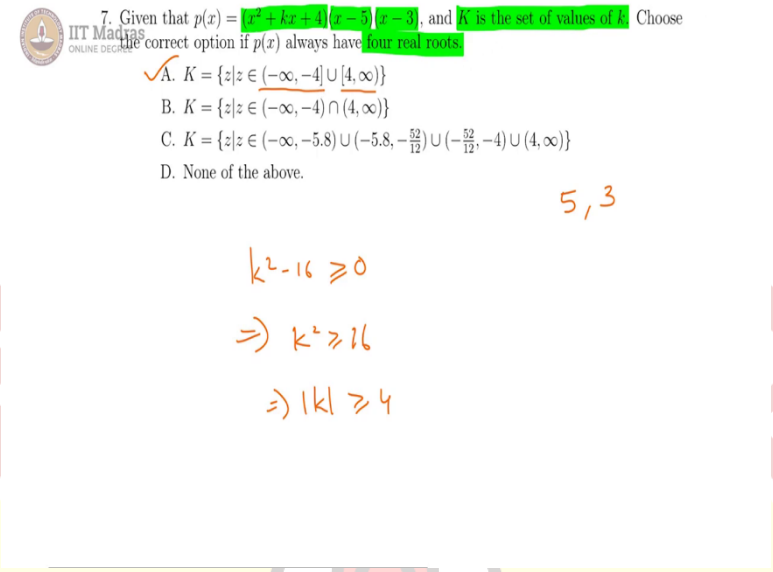
IIT Madras

ONLINE DEGREE

Mathematics for Data Science -1
Week 07 - Tutorial 07

(Refer Slide Time: 0:14)



In this question, we are given a polynomial $p(x)$ which is a product of a quadratic with a monomial and another monomial. And the quadratic has some variable k in it, capital K is the set of values of this small k, choose a correct option if $p(x)$ always has 4 real roots but they need not be distinct and we already know that 5 and 3 are roots because of these two monomials. So, what is remaining is that our quadratic equation also should have roots.

And for that the discriminant which is $k^2 - 16$ should be ≥ 0. That would indicate $k^2 \geq 16$, thus k, the magnitude of $k \geq 4$. If $k \geq 4$ you get a repeated root you get the same root twice, so what corresponds which option corresponds to this is a because you go from $-\infty$ to -4 and then 4 to $+\infty$ and their union and 4 and -4 are with closed intervals therefore, they are included.