## An Introduction to Microeconomics Prof. Vimal Kumar Department of Economic Sciences Indian Institute of Technology, Kanpur

## Lecture -128 Profit Maximization for the Monopolist through Graph

So, let us look at another of the properties traits of the monopolist which is maximizing; it is profit that this monopolist would never operate in the inelastic zone, it always produces output in the elastic zone and why is it so?

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Remember, let us take the simple example that we had earlier that; downward sloping demand function here we have Q here we have P. And here we are going to talk about total revenue, what is happening to the total revenue? It goes up and then it comes down, we have done it in one of the previous lectures. Now what is happening? Remember this zone is the elastic zone or to be better, we say that this zone is the elastic zone and this zone is in elastic zone.

Now what is happening in the in elastic zone think about it that notice that Q is increasing in this direction and P is increasing in the opposite direction. So, if we take a level of output which is in the in elastic zone, what happens? When you decrease the level of output Q goes down, but P would of course, goes up because P and Q are inversely related to each other.

The total revenue goes up ok. As Q goes down the total cost would also will come down. As we know that the cost is a non-decreasing function of quantity. So, as what does it mean? That as quantity increases the cost to produce all the output increases or not it does not decrease. So, what happens T R goes up and total cost comes down, what it means; as an implication because profit is equal to T C minus T C; this entity is going up and this entity is going down.

So, in inelastic reason if firm increases the price or decreases the quantity then the profit goes up. So, a firm which is interested in maximizing the profit should keep on decreasing the quantity or in other word keep on increasing the price as long as it is in the inelastic zone. So, optimally it should never be producing in the inelastic zone.

Thank you.