

Lecture 15 Worksheet (ECON211), AY 2025-26 [Date: 26 Aug 2025]

1. If $y = \log_a x$ and $a^y = x$, find the first and the second order derivatives.

2. Myntra estimates the demand for a particular apparel brand to be $q = (100 - p^2)$. What will be the elasticity of demand when a) the unit price falls below ₹5, and b) the unit price goes above ₹7? What about the revenue in each of these cases?

3. Find $f'^{(-1)}(1)$ if $f(x) = \frac{e^{-3x}}{x^2 + 1}$.

4. It is estimated that the number of tickets q for a concert listed on Bookmyshow is related to the ticket price p by the following equation: $q = \frac{2}{3}\sqrt{36 - p^2}$ ($0 \leq p \leq 6$). The price is set to ₹2 per ticket. Is the demand elastic or inelastic at this price? What happens to the revenue if Bookmyshow decides to increase the ticket price?