Answer on Question 70723-Economics - Microeconomics

A consultant estimates the Price / Quantity relationship for New World Pizza to be P = 50 – 5Q. (Hint: For what follows, you might find it helpful to calculate marginal revenue.)

a. At what output rate is demand unitary elastic?

b. Over what range of output is demand elastic?

c. At the current price, eight units are demanded each period. If the objective is to increase total revenue, should the price be increased or decreased? Explain.

Solution.

A. The point price elasticity of demand is calculated as

$$K_d = \frac{dQ}{dP} \times \frac{P}{Q}$$

So, if P=50-5Q, then Q=10-0,2P

$$K_d = (10 - 0,2P)' \times \frac{P}{Q(P)} = -0,2 \times \frac{50 - 5Q}{Q} = \frac{Q - 10}{Q}$$

Demand is unitary elastic when K=1, so

$$K_d = \frac{Q - 10}{Q} = 1; => Q - 10 = Q, there\ is\ no\ solutions$$

Answer: demand is never unitary elastic

B. Demand is elastic when K>1

$$K_d = \frac{Q - 10}{Q} > 1; => Q - 10 > Q, there\ is\ no\ solutions$$

Answer: Demand is inelastic at all times, because Q-10<Q always (K<1)

C. Since the demand is inelastic, so to increase total revenue it is necessary to increase the price. The quantity demanded would decrease to a lesser extent than the price would rise, consequently total revenue increases.

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