Intermediate Microeconomics (Fall 2023)
Homework 1 Answer Key

1 − 5 DBBCC

6.

1)

① $Q = \dfrac{10}{P}$

② $P = \dfrac{10}{Q}$

2) Decrease if $\epsilon > 1$, no change if $\epsilon = 1$, increase if $\epsilon < 1$.

7.

1) $1.1Q_1 + 1.1 + Q_1 + 1 = 4$

$$\Rightarrow Q_1 = \frac{19}{21}$$

$$\Rightarrow E_{Arc}^{D} = \frac{\Delta Q}{\Delta P} \cdot \frac{\overline{P}}{\overline{Q}}$$

$$= \frac{\frac{19}{21} - 1}{1.1 - 1} \cdot \frac{\frac{1.1 + 1}{2}}{\frac{\frac{19}{21} + 1}{2}}$$

$$= -\frac{21}{20}$$

2) Take total differential:

$P_1 dQ_1 + P_2 dQ_1 + Q_1 dP_2 + Q_2 dP_2 = 0$

$$\Rightarrow \frac{dQ_1}{dP_2} = -\frac{Q_1 + Q_2}{P_1 + P_2}$$

$$\Rightarrow E_{Q_1, P_2} = \frac{dQ_1}{dP_2} \cdot \frac{P_2}{Q_1}$$

$$= -\frac{Q_1 + Q_2}{P_1 + P_2} \cdot \frac{P_2}{Q_1}$$

$$= -\frac{1 + 1}{1 + 1} \cdot \frac{1}{1}$$

$$= -1$$

8.

1) **The producers may not aim at maximizing their revenue, rather, to maximize their profit instead.**

2) **The demand function may not always be the same.**

3) **The producers may not know the exact demand function.**

4) **The market may not include only one producer.**