Unit 04

Exercise 06 – Getting Comfortable with Elasticity

Your Student's ID _____

1. You must complete all tasks to achieve a total score of 4 points.
2. You must **provide precise calculations** for each task.
   While you do not need to show your rough work, you must include the formula, your input values, and the final result.
3. You will not receive any points for Part 1, but any miscalculation will lead to incorrect answers in all subsequent parts.

Part 1: Calculating Opportunity Cost

Consider a student with ID **66110293**. The student has two options for their summer break:

- **Job 1**: Working at a business or NGO. Daily wage: **$293** for **9 hours** (the last three digits of the student's ID). Replace with your value: **$** _____
- **Job 2**: An alternative job. Daily wage: **$392** for **9 hours** (the last three digits of the student's ID in reverse order). Replace with your value: **$** _____

Task 1: Finding Value A = Opportunity cost of working **1.5 hours** at the higher-paid job (rounded to the nearest whole number). **Calculation:**

Value A = _____

Task 2: Finding Value B = Opportunity cost of working **1 hour** at the lower-paid job (rounded to the nearest whole number). **Calculation:**

Value B = _____

Part 2: Analysing Income Elasticity of Demand for Smartphones

Using **Value A** and **Value B** from the previous part, assume that the student's income represented by these values changed from the lower to the higher value (so we have Income 1 and Income2). We also know that the **income elasticity of demand** for smartphones is **1 + 0.XX**, where **XX** are the last two digits of your student ID. **Example:**
for ID **66110293**, the income elasticity would be: **1 + 0.93 = 1.93**

Task 1: What is the **% change** in the number of smartphones demanded? (Round to **one decimal place**).

$\Delta Q_{d\_smartphone}$ = _____

Task 2: Assume the initial demand for smartphones is equal to the last three digits of the student's ID (e.g., **293** for **66110293**). Now, when you know % change in quantity demanded - calculate the **new** number of smartphones demanded (rounded to the nearest whole number).

$Q_{demanded\_smartphone}$ = _____

Part 3: Analysing Cross-Price Elasticity of Demand

The **cross-price elasticity of demand for smartphones** (in relation to laptop price changes) is calculated as 3 - Income Elasticity of Demand for Smartphones (1.93 from the previous task) …. Using the previous example: **3 - 1.93 = 1.07**

Task 1: Calculate the **% change** in the price of laptops (rounded to **one decimal place**).

ΔP_{laptop} = _____

Task 2: The previous average price of laptops was **$450**. Calculate the **new** average laptop price (rounded to the nearest whole number).

P_{laptop_new} = _____

Part 4: Analysing Elasticity of Demand for Laptops

The **elasticity of demand for laptops** is given by: 0.5+ (the absolute value (positive) of the cross-price elasticity of demand for smartphones from the previous task)

Task 1: Calculate the **% change** in the number of laptops demanded (rounded to **one decimal place**).

$\Delta Q_{demanded\_laptops}$ = _____

Task 2: Assume the initial monthly demand for laptops equals the reverse order of the last three digits of the student's ID (**e.g., 392** for **66110293 or 570** for **661100057**). Calculate the **new** quantity of laptops demanded (rounded to the nearest whole number).

Take - Home

$\Delta Q_{demanded\_laptops}$ = _____

Part 5: Evaluating Total Revenue Change for Laptops

Task 1: Calculate the **change in total laptop revenue**, considering the old and new average prices and quantities. (Round to the nearest whole number).

Revenue change (R) = _____

Task 2: Determine whether **total revenue** from laptop sales has **increased or decreased** (circle the correct answer).

Fall / Growth