Exercise walk-through

Price elasticity of demand (PED) ▪ 2.6

eXercise

You must be able to

- calculate and interpret PED
- classify demand as elastic or inelastic
- explain the link between PED and total revenue

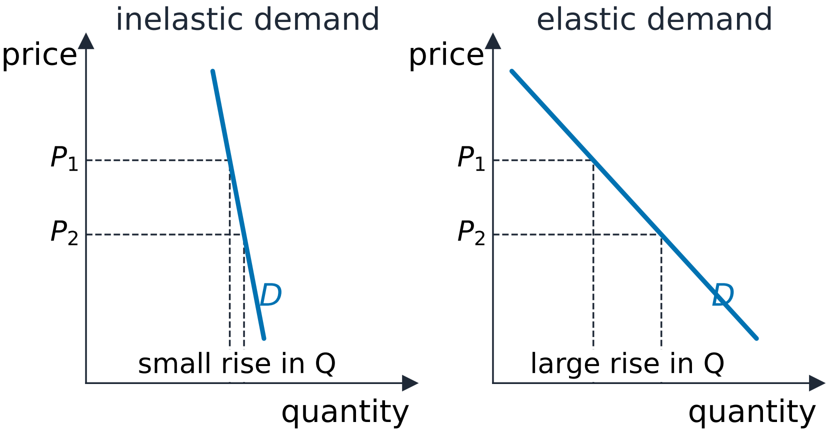
Method — Measuring PED

$$\text{PED} = \frac{\%\ \text{change in quantity demanded}}{\%\ \text{change in price}}$$

- **Worked:** price $+20\%$, quantity -10% $\rightarrow$ PED $= \frac{10}{20} = 0.5 \rightarrow$ **inelastic** (<1).
- **Elastic** (>1): many substitutes, a luxury. **Inelastic** (<1): a need, few substitutes (petrol, salt).
- **Revenue:** if demand is inelastic, raising the price **raises** total revenue.

Answer shapes: K + App + An + Ev (a justified judgement, for discuss questions).

Method — Measuring PED



Inelastic (steep) vs elastic (shallow) demand

Practice 2.1 ▪ 2 marks

Define *price elasticity of demand (PED)*.

Solution 2.1

Method: Measuring PED

Worked steps

a measure of how much the quantity demanded responds to a change in price (% change in quantity ÷ % change in price) (2 for a clear definition; 1 for a partial idea).

Practice 2.2 ▪ 2 marks

Price rises by 10% and quantity demanded falls by 30%. Calculate the PED and classify the demand.

Solution 2.2

Method: Measuring PED

Worked steps

PED $= \frac{30}{10} = 3$; greater than 1, so demand is **elastic** (2; award 1 for a correct value with no classification).

Practice 2.3 ▪ 1 mark

State one factor that makes demand for a good elastic.

Solution 2.3

Method: Measuring PED

Worked steps

any one of: the good has many substitutes; it is a luxury; it takes a large share of income (1).

Exam-style 3.1 ▪ 1 mark

A good has a PED of 0.3. To raise its total revenue, a firm should:

- **A** lower the price
- **B** raise the price
- **C** keep the price the same
- **D** stop producing it

Solution 3.1

Method: Measuring PED

A lower the price

B raise the price ✓

C keep the price the same

D stop producing it

Worked steps

B. With PED 0.3 (inelastic), raising the price raises total revenue.

Exam-style 3.2 ▪ 4 marks

Explain why the demand for petrol is price inelastic.

Solution 3.2

Method: Measuring PED

Worked steps

[4] K 1 + An up to 3 — petrol is a necessity for drivers with few close substitutes $\rightarrow$ when its price rises, people still need to drive $\rightarrow$ so the quantity demanded falls only a little $\rightarrow$ demand is price inelastic.

Exam-style 3.3 ▪ 6 marks

Analyse why a government often places taxes on goods with inelastic demand, such as cigarettes.

Solution 3.3

Method: Measuring PED

Worked steps

[6] K/App/An — for an inelastic good like cigarettes, a tax raises the price but the quantity bought falls only a little $\rightarrow$ so people keep buying and paying the tax $\rightarrow$ the government collects a large, steady amount of revenue $\rightarrow$ and it may also slightly reduce smoking (a demerit good), achieving two aims.