

Exercises

WTP AND DEMAND

Demand derived from WTP

This table shows Paul's willingness to pay to spend a day in a natural park over the course of a month:

Visits per month	Total willingness to pay
1	100
2	180
3	250
4	300
5	330
6	350

1. Suppose that Paul is rational and the only cost of visiting the park is the entry ticket costing 60. How often will Paul visit the park?
2. Suppose that the entry ticket is lowered to 40. How many days will Paul spend in the park?
3. Suppose that Paul already enjoyed 3 free days in the park. For how many more days will he accept to pay 40?

Demand \Leftrightarrow Marginal WTP

- Consider this demand function: $Q_D = 25 - p/2$
- What is the equation for the marginal WTP?
- How many units would be sold for a price $p = 30$?
- What is the total WTP for this number of units?
- What is the buyers' surplus for this number of units sold at price $p = 30$?

Impact of price change on demand

Please complete this sentence:

When the price of a good increases, the demand of a single consumer for this good

It does so for two reasons:

- 1)
- 2)

Movements on and of the demand curve

Please show graphically the impacts on the demand curve for heating oil of the following events (*remember to name the axes of your graph*):

- a. The winter is particularly cold
- b. Many buildings were given a stronger thermal insulation (and there is no offsetting rebound)
- c. A carbon tax raises the price of heating oil
- d. The prices of solar panels and heat pumps decrease

Elasticity of demand

France raised the tobacco tax by 18% of cigarette prices in October 2003 and by another 9% in January 2004

After these two raises, the number of cigarettes sold decreased by 25% compared to before the tax increases

Please calculate the elasticity of cigarette demand

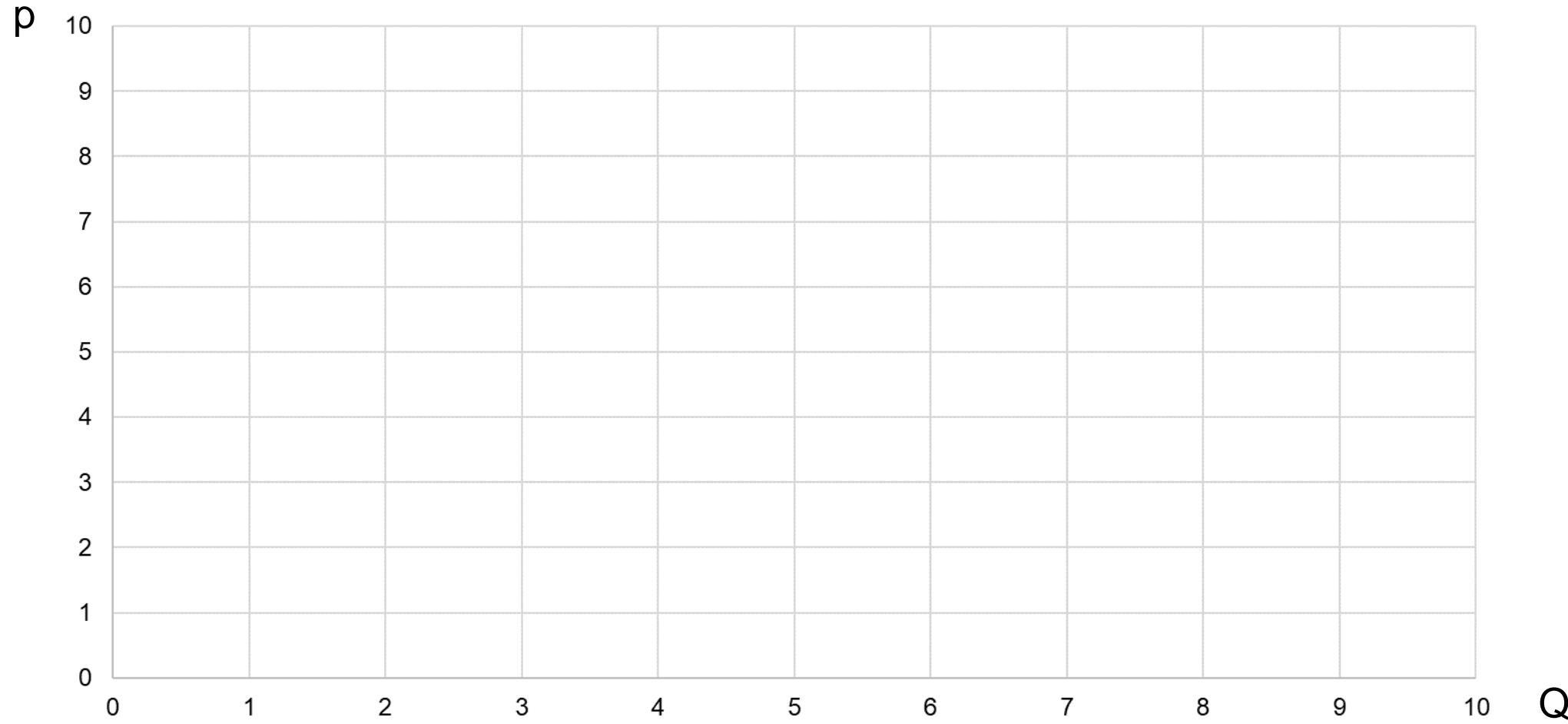
What assumptions do you have to make for this calculation?

From individual to aggregate demand

Demand of group A: $Q_A = 4 - p/2$

Demand of group B: $Q_B = 5 - p$

What is total demand?



Aggregate demand and surpluses

The Jones and Smith families, living each in a single-family house, are interested in buying PV panels to put on their roof

The lower the price of panels, the more they intend to buy, as shown in the table

Price per panel	Jones	Smith	Total demand
10	0	0	
9	1	0	
8	2	0	
7	3	2	
6	4	4	
5	5	6	
4	6	8	
3	7	10	

- Calculate the sum of the two demands and fill in the blanks
- Draw the demands of the Jones, Smith and total
- Calculate the Jones' and Smith's surplus if the price of a panel is 7
- Estimate functions for Jones' and Smith's demand and total demand
- Use the functions you estimated in d) to repeat question c)