Exercise walk-through

2.1

Equilibrium, elasticity and intervention: supported rehearsal

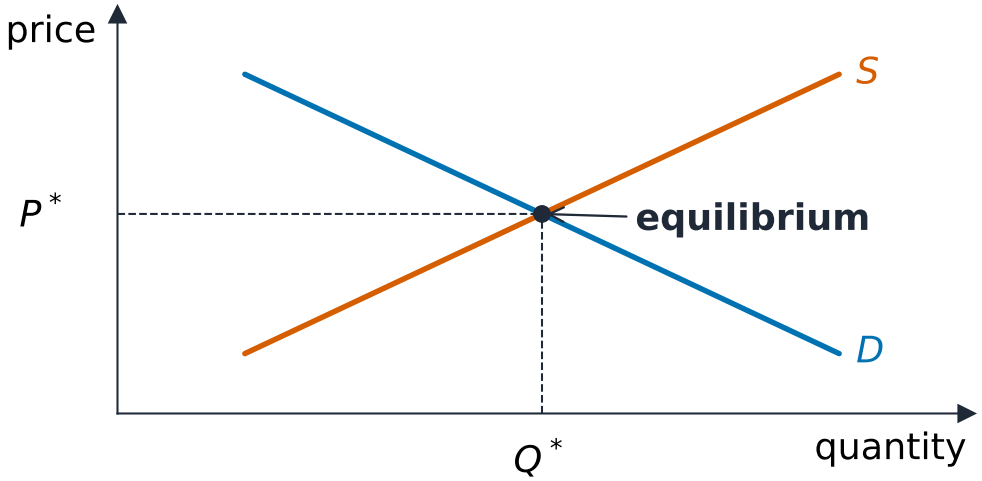
International Baccalaureate · IB Diploma · Economics · HL

Competitive market equilibrium

- **Equilibrium** is where quantity demanded equals quantity supplied (2.3).
- On the model:
- Away from equilibrium the market corrects itself:
- Prices do three jobs in a free market: they **signal** where resources are wanted, give firms an **incentive** to produce, and **ration** scarce goods to those willing to pay.

$$140 - 2P = 20 + 4P \quad \Rightarrow \quad 6P = 120 \quad \Rightarrow \quad P^* = 20,\ Q^* = 100$$

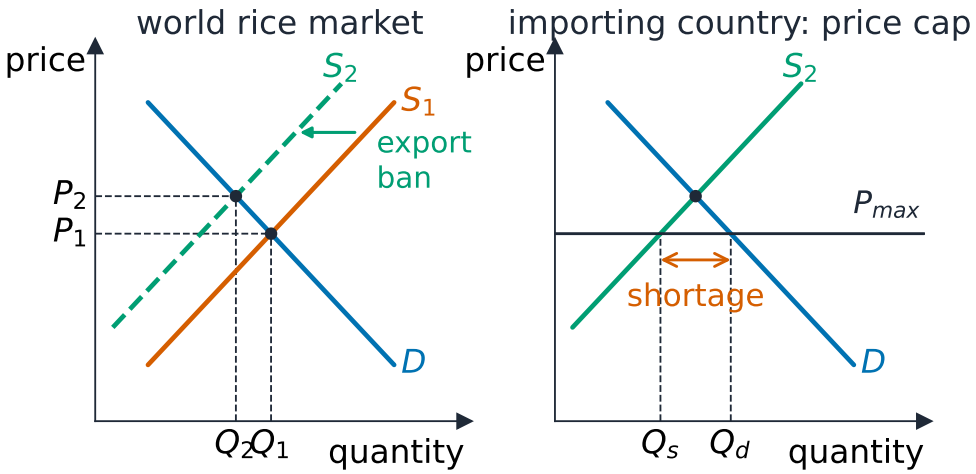
Figure: Competitive market equilibrium



equilibrium: $Q_d = Q_s$ at (P^*, Q^*) (market clears)

- Equilibrium is where quantity demanded equals quantity supplied.
- Price on the vertical axis, quantity on the horizontal.

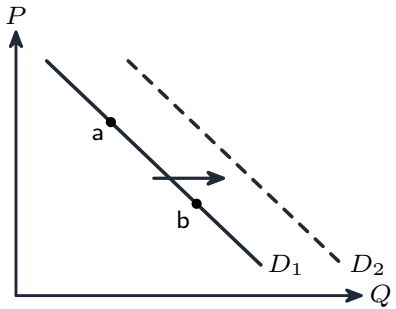
Figure: Data-response practice (Paper 2 style)



- Left: the **export ban** shifts world supply left. Right: a **maximum price** below the new equilibrium creates a shortage.
- Match each part of the diagram to the text.

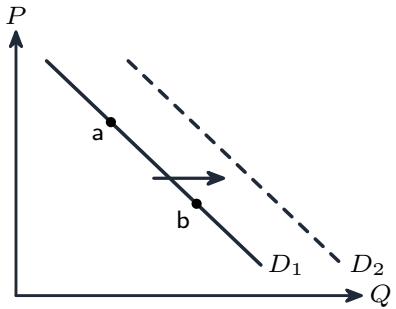
Exercise 2.1

2.1 Explain the difference between a change in quantity demanded and a change in demand. [2]



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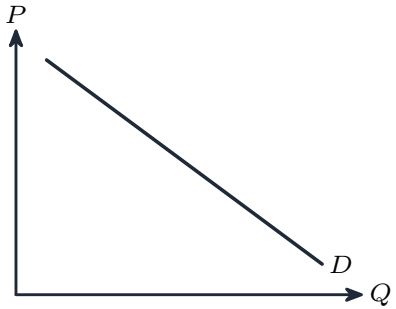


2.1

a change in quantity demanded is a movement along the demand curve, caused only by a change in the good's own price; a change in demand is a shift of the whole curve, caused by a non-price determinant such as income or tastes

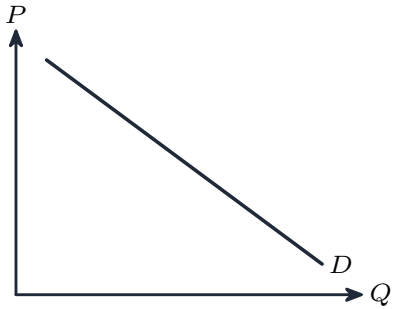
Exercise 2.2

2.2 State **two** reasons why a demand curve slopes downwards. [2]



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2.2

any two: diminishing marginal utility: each extra unit gives less satisfaction, so consumers only buy more at a lower price; income effect: a lower price raises real income; substitution effect: the good becomes cheaper than substitutes

Exercise 2.3

2.3 Using a demand and supply diagram, explain how a rise in the price of coffee affects the market for tea. [4]



[[drawlines:4]]

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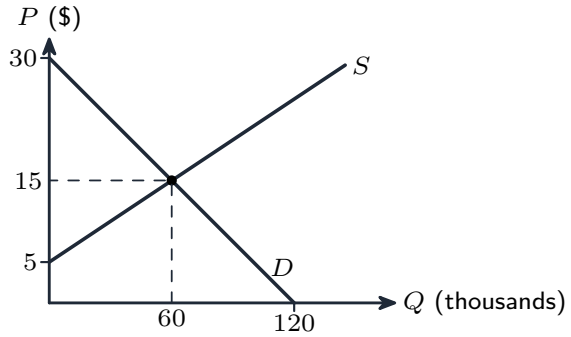
[[drawlines:4]]

2.3

tea and coffee are substitutes; as coffee becomes dearer, some consumers switch to tea, so the demand for tea increases: shift right; diagram: D_1 to D_2, with new equilibrium; higher price and quantity of tea, $P_2 > P_1$, $Q_2 > Q_1$

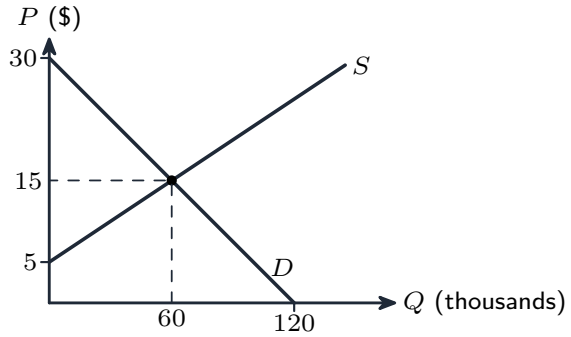
Exercise 2.4

2.4 The demand for bus tickets is $Q_d = 120 - 4P$ and the supply is $Q_s = -30 + 6P$ (P in \$, Q in thousands). Calculate the equilibrium price and quantity. [3]



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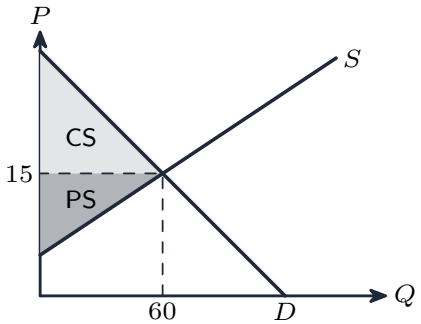


2.4

$120 - 4P = -30 + 6P$; $P = \$\mathbf{15}$; $Q = 120 - 60 = \mathbf{60}$ thousand tickets

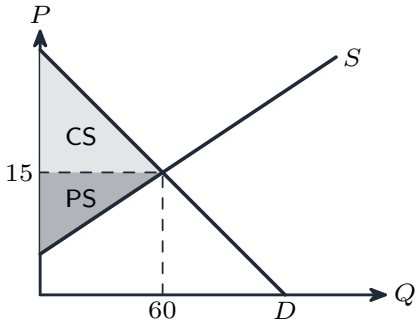
Exercise 2.5

2.5 Using the functions in the previous question, calculate the consumer surplus and producer surplus at equilibrium. [3]



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2.5

demand meets the price axis at $P = 30$, supply at $P = 5$; consumer surplus $= \frac{1}{2} \times 60 \times (30 - 15) =$ \$**450** thousand; producer surplus $= \frac{1}{2} \times 60 \times (15 - 5) =$ \$**300** thousand

Exercise 3.1 (a)

3.1 A frost destroys a large part of the orange harvest in a major growing region.

(a) Define **excess demand**. [2]



Exercise 3.1 (a)

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(a) Define **excess demand**. [2]



(a) when quantity demanded is greater than quantity supplied; at a price below equilibrium

Exercise 3.1 (b)

3.1 A frost destroys a large part of the orange harvest in a major growing region.

(b) Using a diagram, explain how the price mechanism brings the orange market to a new equilibrium. [6]

[[drawlines:6]]

Exercise 3.1 (b)

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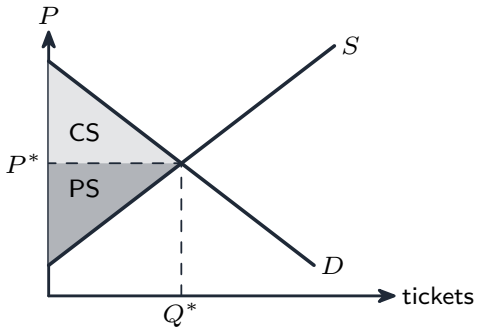
[[drawlines:6]]

(b) frost cuts supply: S_1 shifts left to S_2; at the old price there is now excess demand (shortage); signalling: the shortage pushes the price up, telling producers and consumers about scarcity; rationing: a higher price reduces quantity demanded, so oranges go to those most willing to pay; incentive: a higher price encourages more supply from other regions (movement along S_2); diagram: new equilibrium with higher price, lower quantity, correctly labelled

Exercise 3.2 (a)

3.2 A government is worried that ticket prices for a popular concert are “too high”.

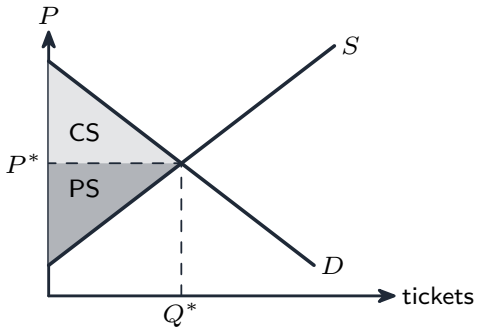
(a) Explain why the market equilibrium is allocatively efficient. [2]



Exercise 3.2 (a)

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(a) at equilibrium the price people are willing to pay for the last ticket (marginal benefit) equals the cost of supplying it (marginal cost); so social surplus (consumer + producer surplus) is as large as possible

Exercise 3.2 (b)

3.2 A government is worried that ticket prices for a popular concert are “too high”.

(b) Explain what happens to social surplus if sales are held below the equilibrium quantity. [2]

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(b) Explain what happens to social surplus if sales are held below the equilibrium quantity. [2]

(b) some tickets that are worth more to buyers than they cost to supply are not sold; so social surplus falls: a welfare (deadweight) loss