Understanding Supply and Demand

Student workbook: attempt every question before looking at the solutions manual.

O1	Explain what a market is, and who the buyers and sellers are.
O2	Describe demand and supply using tables and graphs.
O3	Find the equilibrium price, and explain shortages and surpluses.
O4	Predict how prices and quantities change when demand or supply shifts.

O1: Explain what a market is, and who the buyers and sellers are.

Q01 [Foundational · short answer]

In your own words, what is a market? Give two examples that are not physical places.

Q02 [Foundational · multiple choice]

In a market for bicycles, who are the producers? (a) people buying bicycles (b) firms making and selling bicycles (c) the government (d) banks

Q03 [Core · conceptual]

Why do economists say that most prices are not 'set' by anyone?

O2: Describe demand and supply using tables and graphs.

Q04 [Foundational · numerical]

Using Qd = 1100 - 200P, find the quantity demanded at $4 per kg.

Q05 [Foundational · numerical]

Using Qs = -100 + 200P, find the quantity supplied at $5 per kg.

Q06 [Core · applied]

Complete a demand schedule for P = $1, $2, $3, $4 and $5 using Qd = 1100 - 200P, and describe the shape of the demand curve.

Q07 [Core · multiple choice]

Which axis shows price on a standard supply and demand graph? (a) horizontal (b) vertical (c) either (d) neither

Q08 [Applied · conceptual]

Give two different reasons why the quantity demanded of a good falls when its price rises.

O3: Find the equilibrium price, and explain shortages and surpluses.

Q09 [Foundational · numerical]

Find the equilibrium price and quantity for Qd = 1100 - 200P and Qs = -100 + 200P.

Q10 [Core · numerical]

At a price of $1 per kg, is there a shortage or a surplus, and how large?

Q11 [Core · numerical]

At a price of $4.50 per kg, is there a shortage or a surplus, and how large?

Q12 [Core · true/false]

True or false: equilibrium is the fairest possible price.

Q13 [Applied · scenario]

Concert tickets have a printed price far below what many fans will pay, and they sell out in minutes. Use supply and demand to explain the resale market.

Q14 [Applied · applied]

A city sets a legal maximum price of $2 per kg for mangoes. Using the lesson's equations, how big is the shortage, and name two likely side effects.

G01a [Core · numerical]

Market for coffee (cups per day): Qd = 900 - 100P and Qs = -100 + 100P. Find the equilibrium price and quantity.

G01b [Core · numerical]

In the same market, the price is held at 4. Is there a shortage or a surplus, and how large?

G02a [Core · numerical]

Market for bicycles (per week): Qd = 220 - 10P and Qs = -20 + 6P. Find the equilibrium price and quantity.

G02b [Core · numerical]

In the same market, the price is held at 12. Is there a shortage or a surplus, and how large?

G03a [Core · numerical]

Market for bread loaves (per day): Qd = 1200 - 300P and Qs = 200 + 200P. Find the equilibrium price and quantity.

G03b [Core · numerical]

In the same market, the price is held at 1.5. Is there a shortage or a surplus, and how large?

G04a [Core · numerical]

Market for concert seats (per night): Qd = 5000 - 50P and Qs = -1000 + 100P. Find the equilibrium price and quantity.

G04b [Core · numerical]

In the same market, the price is held at 30. Is there a shortage or a surplus, and how large?

O4: Predict how prices and quantities change when demand or supply shifts.

Q15 [Foundational · multiple choice]

Which of these shifts the demand curve for coffee? (a) the price of coffee rises (b) a study says coffee is healthy (c) a new coffee machine lowers costs (d) coffee farmers have a good harvest

Q16 [Core · true/false]

True or false: 'The price of coffee rose, so the demand for coffee fell.'

Q17 [Core · numerical]

Supply falls by 200 kg at every price (Qs' = -300 + 200P). Find the new equilibrium.

Q18 [Applied · applied]

A new machine makes bicycles much cheaper to produce. What happens to supply, the equilibrium price and the quantity sold?

Q19 [Applied · scenario]

Incomes rise and, at the same time, a storm damages farms. Can you say for certain what happens to the price of mangoes? To the quantity?

Q20 [Advanced · critical thinking]

Both a demand increase and a supply decrease raised the mango price to $3.50 in the lesson. How could an observer who sees only the new price and quantity tell which one happened?

Q21 [Advanced · long answer]

Write a short paragraph (about 120 words) explaining, with a diagram, why winter strawberries cost more than summer strawberries in a country with cold winters.

G01c [Applied · numerical]

Demand in the coffee (cups per day) market rises by 100 at every price (Qd' = 1000 - 100P). Find the new equilibrium and say which way price and quantity moved.

G02c [Applied · numerical]

Demand in the bicycles (per week) market rises by 8 at every price (Qd' = 228 - 10P). Find the new equilibrium and say which way price and quantity moved.

G03c [Applied · numerical]

Demand in the bread loaves (per day) market rises by 250 at every price (Qd' = 1450 - 300P). Find the new equilibrium and say which way price and quantity moved.

G04c [Applied · numerical]

Demand in the concert seats (per night) market rises by 75 at every price (Qd' = 5075 - 50P). Find the new equilibrium and say which way price and quantity moved.

Assignment 1: observe a real market (individual, about 600 words)

Choose one product sold near you or online whose price changes over time (fruit, fuel, flights, tickets). Track its price on at least five occasions over two weeks, and record what you notice about how much is being bought or offered.

1. Describe the market: who the buyers and sellers are (O1).
2. Present your price observations in a table and a simple line graph (O2).
3. Use supply and demand to explain at least one price change, saying which curve shifted and why (O4).
4. State one limitation of your explanation (for example, other things not being equal).

Assignment 2: data analysis (individual)

A city's weekly market for strawberries gives this schedule: at $2, 1,000 kg demanded and 200 kg supplied; at $3, 800 and 400; at $4, 600 and 600; at $5, 400 and 800; at $6, 200 and 1,000.

1. Plot both curves on one graph and mark the equilibrium.
2. Find linear equations for demand and supply that fit the table, and check them against every row.
3. A price ceiling of $3 is introduced. Calculate the shortage and describe two likely consequences.
4. A cold spell halves supply at every price. Find the new equilibrium using your equations.