

# Demand

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## What you need to know

By the end of this topic you should be able to:

1. **Define demand:** the willingness **and** ability of consumers to buy a product at a given price, over a given period of time. Draw a demand curve and read it.
2. **Link price, demand and quantity.** Draw a demand curve (price on the vertical axis, quantity demanded on the horizontal) and use it to show a **movement along** the curve when the product's own price changes. Use the right words: a fall in price causes an **extension** in demand; a rise in price causes a **contraction** in demand.
3. **Link individual and market demand.** Market demand is found by adding up (aggregating) the demand of every individual buyer at each price.
4. **Explain the conditions of demand:** the things other than the product's own price that **shift** the whole demand curve, with the right words: a shift to the right is an **increase in demand**, a shift to the left is a **decrease in demand**.

The whole topic is the same for every candidate (0455 has no Core/Extended split). Price elasticity of demand and how demand and supply together set the price are later topics.

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## Understand it

### What demand means

Wanting something is not enough. **Demand** is the amount of a product that consumers are **willing and able** to buy at a given price over a period of time (a week, a month, a year). A student who would love a sports car but has no money has a want, not a demand. So demand depends on three things together: how much people want the product (willingness), whether they can afford it (income, the ability to pay) and its price.

### The demand schedule and the demand curve

A **demand schedule** is a table of how much buyers plan to buy at each price. Suppose a town's shoppers plan to buy these amounts of mangoes each week:

| Price per kg | Quantity demanded (kg per week) |
|--------------|---------------------------------|
| \$5          | 20                              |
| \$4          | 40                              |
| \$3          | 60                              |
| \$2          | 80                              |
| \$1          | 100                             |

Plot each pair with **price on the vertical axis** and **quantity demanded on the horizontal axis**, join the points and label the line **D**. That is the **demand curve**. (Economists call it a "curve" even when it is a straight line.)

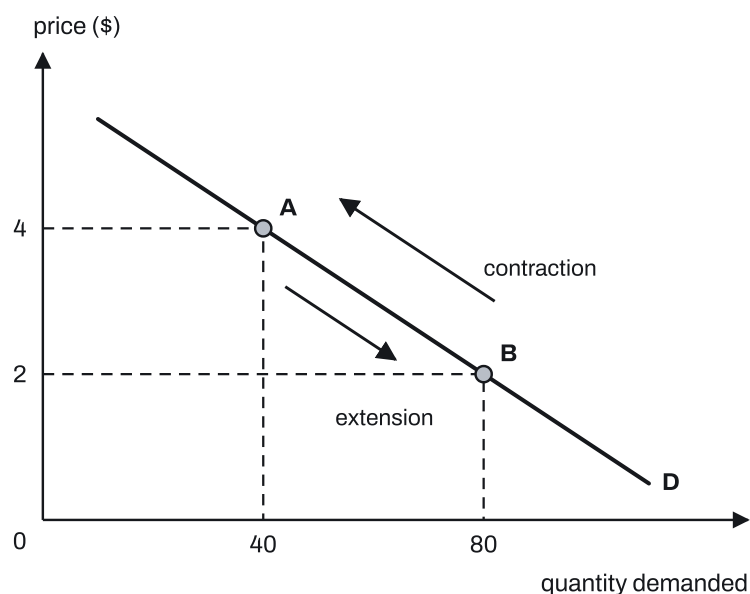
It **slopes downwards from left to right**: the lower the price, the more people plan to buy. Two reasons:

- at a lower price more people can **afford** the product, and those who already buy it can afford more;
- the product becomes **cheaper compared with other products** (substitutes), so people switch towards it.

A demand curve is drawn assuming that **everything except the product's own price stays the same** (incomes, tastes, the prices of other products, and so on). This is the key to the whole topic.

### Movements along the curve: extension and contraction

Only a change in the product's **own price** moves you **along** the demand curve.

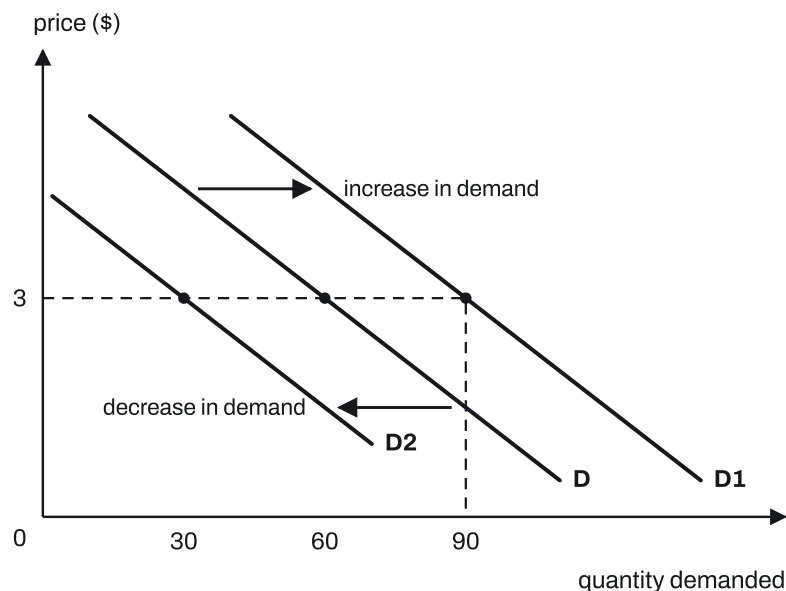


- The price falls from \$4 to \$2: quantity demanded rises from 40 kg to 80 kg. This is an **extension in demand** (also called an increase in the quantity demanded): a movement **down** the curve from A to B.
- The price rises from \$2 to \$4: quantity demanded falls from 80 kg to 40 kg. This is a **contraction in demand** (a decrease in the quantity demanded): a movement **up** the curve from B to A.

The curve stays where it is. Anything that changes the product's price, including a change in its **supply** (for example a good harvest or lower production costs making it cheaper), causes a movement along the demand curve, never a shift of it.

## Shifts of the curve: the conditions of demand

If something **other than the product's own price** changes, buyers want more (or less) **at every price**. The whole curve moves.



- **Increase in demand:** the curve shifts to the **right** (D to D1). At the same price of \$3, people now want 90 kg instead of 60 kg.
- **Decrease in demand:** the curve shifts to the **left** (D to D2). At \$3 they now want only 30 kg.

These are the **conditions of demand**, the non-price causes of a shift. For each, know the direction and **why** it happens:

| Condition of demand                                                                                      | Change that <b>increases</b> demand (shift right)        | Why                                                                      |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------|
| <b>Income</b>                                                                                            | Incomes rise (for example wages rise, income tax is cut) | Consumers are more <b>able</b> to buy; purchasing power rises            |
| <b>Price of a substitute</b> (a product used <b>instead</b> : tea and coffee, buses and cars)            | The substitute's price <b>rises</b>                      | This product is now <b>relatively cheaper</b> , so people switch to it   |
| <b>Price of a complement</b> (a product used <b>together with</b> it: cars and petrol, printers and ink) | The complement's price <b>falls</b>                      | People buy more of the complement, so they need more of this product too |
| <b>Tastes and fashion</b>                                                                                | The product becomes more popular or fashionable          | People are more <b>willing</b> to buy it                                 |

| Condition of demand                | Change that <b>increases</b> demand (shift right)                                             | Why                                                           |
|------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| <b>Advertising</b>                 | A successful advertising campaign for the product                                             | It informs and persuades people to buy                        |
| <b>Information and health</b>      | A report or government campaign saying the product is good for you                            | People are more willing to buy it (for example fresh fruit)   |
| <b>Population</b>                  | More people in the market (a growing population, more tourists, more people of the right age) | More buyers at every price                                    |
| <b>Expected future price</b>       | People expect the price to rise soon                                                          | They buy now, before it goes up                               |
| <b>Quality</b>                     | The product's quality improves                                                                | It gives more satisfaction, so people are more willing to buy |
| <b>Season and weather</b>          | The right season (umbrellas in the rainy season, ice cream in summer)                         | The product is more needed at that time                       |
| <b>Interest rates</b>              | Interest rates fall                                                                           | It is cheaper to borrow to buy the product (houses, cars)     |
| <b>Government policy on buyers</b> | A subsidy to consumers, or a lower tax on the product's use                                   | Buyers are more willing and able to buy                       |

Every change the other way gives a **decrease** in demand: incomes fall, a substitute gets cheaper, a complement gets dearer, the product goes out of fashion, a health warning, an advertising campaign for a rival, and so on.

**Substitutes and complements** come up most. There are two different relationships for each pair, and their signs are opposite, so check which two things the question links:

|                                                           | <b>Price of one → demand for the other</b>                                        | <b>Demand for one → demand for the other</b>                                   |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>Substitutes</b> (competing demand: tea and coffee)     | <b>Same way</b> (positive): tea dearer → demand for coffee increases              | <b>Opposite ways</b> (negative): people buy more tea → they buy less coffee    |
| <b>Complements</b> (joint demand: petrol and petrol cars) | <b>Opposite ways</b> (negative): petrol dearer → demand for petrol cars decreases | <b>Same way</b> (positive): people buy more petrol cars → they buy more petrol |

"How does the **price** of a substitute affect demand for coffee?" wants the first column. "Explain the relationship between the **demand** for tennis racquets and the **demand** for badminton racquets" wants the second: substitutes, so a negative (inverse) relationship, because people switch between them.

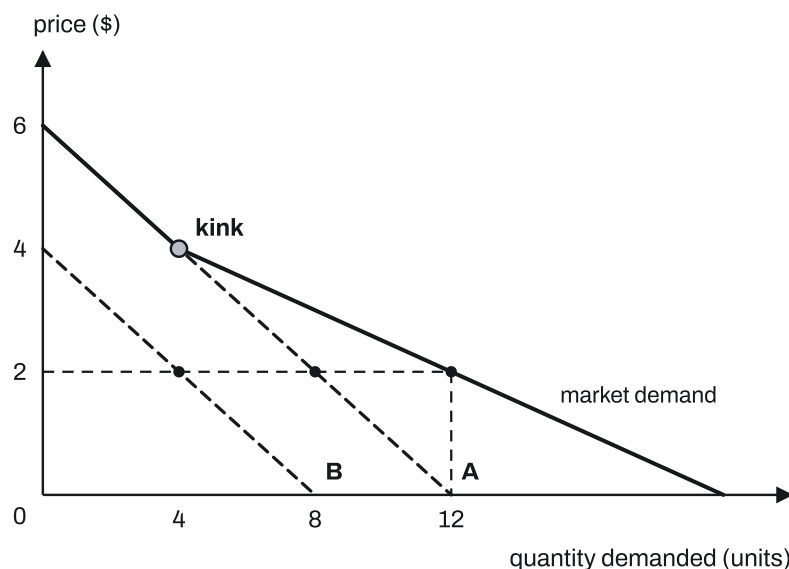
The same idea works with demand for one product changing demand for another. If demand for football shirts rises, demand for football **shorts** (a complement, bought to complete the kit) rises too, while demand for basketball shirts (a possible substitute) may fall.

## Individual and market demand

**Individual demand** is one buyer's demand. **Market demand** is the total demand of all the buyers in the market, found by **adding up the quantities every buyer demands at each price** (aggregation).

| Price | Buyer A | Buyer B | Market demand |
|-------|---------|---------|---------------|
| \$6   | 0       | 0       | 0             |
| \$5   | 2       | 0       | 2             |
| \$4   | 4       | 0       | 4             |
| \$3   | 6       | 2       | 8             |
| \$2   | 8       | 4       | 12            |
| \$1   | 10      | 6       | 16            |

On a diagram you add the curves **sideways** (the quantities), never the prices.



At prices above \$4 only buyer A buys, so market demand is just A's demand. Below \$4 buyer B joins in, so the market curve bends outwards (a kink) and becomes flatter. The market curve always lies **on or to the right of** every individual curve. If a buyer's demand increases, or more buyers join the market, market demand increases.

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## Key facts and formulas

This topic has no formula list in the exam. "Learn it" means you must remember it.

| Fact                                                                                                                                                                      | Status   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Demand: the willingness and ability to buy a product at a given price over a period of time                                                                               | Learn it |
| Demand curve: price on the vertical axis, quantity demanded on the horizontal; slopes down from left to right                                                             | Learn it |
| Own price falls → extension (movement down the curve); own price rises → contraction (movement up)                                                                        | Learn it |
| Any other condition changes → the whole curve shifts: right = increase in demand, left = decrease                                                                         | Learn it |
| Conditions of demand: income, prices of substitutes and complements, tastes, advertising, population, expected prices, quality, season, interest rates, government policy | Learn it |
| Substitutes: price of one and demand for the other move the same way                                                                                                      | Learn it |
| Complements: price of one and demand for the other move in opposite ways                                                                                                  | Learn it |
| Market demand = the sum of every individual's quantity demanded at each price:<br>$Q_{\text{market}} = Q_A + Q_B + \dots$                                                 | Learn it |
| Total spending (the firm's revenue) = price × quantity demanded                                                                                                           | Learn it |

## How to do it

In the questions we have tagged for this topic (25 questions, 2021–2025), the parts about this topic are these. Each question has one part on this topic: the 20-mark Paper 2 questions have other parts on other topics.

| Question type                 | Question parts |
|-------------------------------|----------------|
| Multiple choice (concept)     | 15             |
| Explain (4 marks)             | 6              |
| Analyse (6 marks)             | 3              |
| Multiple choice (calculation) | 1              |

No Define (2) or Discuss (8) parts on this topic have been set yet; the plans at the end of sections 2 and 3 cover them.

### 1. Multiple choice (concept) (15 question parts)

- 1. Decide: movement or shift?** Ask one question: "Is it the product's **own price** that changed?" Yes → movement along the curve (extension or contraction). No → shift (increase or decrease).

2. **Then the direction.** Use the table in "Understand it". For substitutes and complements, say the chain in your head: "tea dearer → people switch to coffee → demand for coffee increases".
3. **Match the words exactly.** Extension and contraction are movements; increase and decrease in demand are shifts.

### Variations you will meet:

- **Movement or shift, and which cause** (8 parts). "What shifts demand to the right?" wants a non-price cause in the right direction, such as a cheaper complement or a dearer substitute. "What causes a movement along the curve?" wants a change in the product's own price. Watch the traps:
  - options about **supply** (a good harvest, higher wages for the workers who make it) do not shift the demand curve;
  - an advertising campaign for a **substitute** (tea, when the question is about coffee) **decreases** demand;
  - on a diagram with two curves, a **contraction** is a move **up the same curve** (to a higher price and smaller quantity), not a jump to the other curve;
  - an **extension** can be caused by anything that **lowers the price**, including lower production costs that increase supply.
- **What demand is, and what the curve shows** (4 parts). Demand depends on the consumer's willingness to buy, their income (ability to pay) **and** the price: all three. A single demand curve shows consumers **planning to buy less as the price rises** (not what firms do, and not what happens when incomes change). The one thing **not** held constant along a demand curve is the product's **own price**.
- **Individual and market demand** (3 parts). The market curve adds quantities sideways, so it is to the right of each buyer's curve and, if one buyer stops buying at a price where the other still buys, it has a **kink** there. From a table of two areas' demand, the area that buys more **at every price** has consumers more **willing and able** to buy; you cannot tell from the table alone that they are richer, want it more, or are more numerous.

## 2. Explain (4 marks) (6 question parts)

These are marked **point plus explanation**: 1 mark for each cause or relationship identified and 1 for explaining it, so **two developed points** earn all 4.

1. **Name the cause precisely, with its direction** (1): "a rise in the price of a substitute such as chicken", not just "substitutes".
2. **Explain why it changes demand** (1): "fish becomes relatively cheaper, so people switch from chicken to fish".
3. Do the same for a second, different cause.
4. **Never use the product's own price** as a cause of a shift, and never use a supply change. Examiners give nothing for "the price of fish rises, so demand shifts left".

### Variations you will meet:

- **Two causes of a shift** (right or left) of a named product's demand curve: income, substitutes, complements, tastes, advertising, population, health information, season.

- **Substitutes and complements** (for example "explain the relationship between the demand for tennis racquets and for badminton racquets, and for tennis racquets and tennis balls", or "how the prices of substitutes and complements affect demand for coffee"). First check which two things are linked (see the table in "Understand it"). **Demand for one and demand for the other**: substitutes are a **negative** link (competing goods: buying more of one means buying less of the other), complements a **positive** link (bought together: more of one, more of the other). **Price of one and demand for the other**: substitutes are **positive** (a dearer substitute raises demand for this good), complements **negative** (a dearer complement lowers it). For each pair: name the relationship and its sign (1), then say what happens and why, with an example (1). If only one of the two is explained, the mark is capped, so always do both.
- **Why someone switches between two sellers** of the same product: the other seller's price is lower, its quality better, its location more convenient, a change in the buyer's income or tastes, advertising.
- **The effect of a change such as better education** on demand for two named products: say the direction for **each** product (demand for cigarettes decreases, demand for fresh fruit increases) and why (better informed about harm or benefit; higher incomes).

No diagram is needed for a 4-mark Explain, and none earns marks.

### 3. Analyse (6 marks) (3 question parts)

Analyse means building **chains of reasoning**: each link says why the next one happens. The final link, "so demand **increases**" (or "**decreases**"), earns its mark only **once** in the whole answer, not once per chain. So plan **three chains**: each with a precise point (1) and a reason (1), and at least one ending in the effect on demand (1); or give each chain a third step that is a further reason or an example (for example, naming the substitute). Listing causes without developing them is capped at about 2 marks.

1. **Read the exact wording**. "Factors that increase the willingness and ability of consumers to buy a **certain product**" is about demand for **one** product: a **fall** in its price, higher incomes, better quality, a dearer substitute. It is not about total demand in the economy or inflation.
2. **Point → why → further reason or example**, with the effect on demand stated (it is credited once): "a fall in the price of complements such as delivery charges (point) → eating Chinese food at home becomes cheaper overall (why) → demand for Chinese food increases, shifting its demand curve to the right (effect)".
3. **Use the right term for each change**: "a fall in price causes an extension in demand" (movement); "a rise in incomes increases demand" (shift).
4. **A demand diagram** is optional but can help: show the shift with D and D1 and an arrow, axes labelled price and quantity.
5. **Two products** (for example complements and substitutes of football shirts): give each product its own chain, with the relationship named and the direction of the change in its demand.

**If a Discuss (8) part is set** on demand (for example "whether a rise in incomes will always increase demand for a product"), add the other side: demand for a product can also depend on tastes, the prices of substitutes, or whether people save the extra income. End with a justified judgement ("it depends on ..."). Both sides developed with a judgement reaches the top level (6–8). **If a Define (2) part is set**, give the full definition: willingness **and** ability (1) to buy at a given price over a period of time (1).

## 4. Multiple choice (calculation) (1 question part)

1. **Add across** each row of a table of individual buyers to get market demand at each price.
2. **Revenue (total spending) = price × quantity** at each price.
3. Compare. For example, if a baker's three customers together want 10, 9, 7 and 4 cakes a week at \$50, \$60, \$70 and \$80, revenue is \$500, \$540, \$490 and \$320, so \$60 gives the most. The lowest price does not always give the most revenue.

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## Worked examples

### Example 1

What would cause an increase in demand for bicycles?

- **A** a fall in the price of bicycles
- **B** a rise in bus fares
- **C** a rise in the price of bicycle helmets
- **D** a fall in consumers' incomes

[1]

A is the bicycle's own price: an extension, not an increase. C is a complement getting dearer and D is falling incomes: both **decrease** demand. Buses are a substitute for bicycles; dearer buses make bicycles relatively cheaper, so people switch to them. The answer is **B**. (1)

### Example 2

The table shows the weekly demand of the only three buyers of a snack.

| Price | Buyer X | Buyer Y | Buyer Z |
|-------|---------|---------|---------|
| \$2   | 6       | 4       | 5       |
| \$3   | 5       | 3       | 3       |
| \$4   | 3       | 2       | 1       |
| \$5   | 2       | 0       | 0       |

The price rises from \$3 to \$4. What is the contraction in market demand?

- **A** 1 unit
- **B** 3 units
- **C** 5 units
- **D** 6 units

[1]

Market demand at \$3 is  $5 + 3 + 3 = 11$  units; at \$4 it is  $3 + 2 + 1 = 6$  units. The contraction is  $11 - 6 = 5$  units: **C**.

(1) (Spending on the snack falls from  $\$3 \times 11 = \$33$  to  $\$4 \times 6 = \$24$ .)

### Example 3

Explain two causes of a decrease in demand for cinema tickets. [4]

One cause is a fall in the price of a substitute, such as streaming services (1). Watching films at home becomes relatively cheaper, so some people switch from the cinema to streaming, and fewer tickets are demanded at every price (1). A second cause is a fall in consumers' incomes, for example during a recession (1). People are less able to afford leisure spending such as going out to the cinema, so demand for tickets decreases and the demand curve shifts to the left (1).

### Example 4

Analyse the effect of a rise in the price of petrol on the demand for petrol cars and on the demand for electric bicycles. [6]

Petrol cars and petrol are complements, because they are used together (1). A rise in the price of petrol makes running a petrol car more expensive (1), so fewer people are willing to buy petrol cars at each price: demand for petrol cars **decreases** and its demand curve shifts to the left (1).

Electric bicycles are a substitute for petrol cars and for driving, since both are ways of getting around (1). As petrol cars become more expensive to run, electric bicycles become relatively cheaper to use (1), so some people switch to them: demand for electric bicycles **increases**, shifting its demand curve to the right (1).

The rise in petrol prices does not change the price of the cars or bicycles themselves, so these are shifts, not movements along the curves (1).

This is more than the 6 marks available; aiming a little over the maximum means one weak link still leaves full marks.

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## Common mistakes

- **Mixing up a movement and a shift.** Examiners report this almost every year. A change in the product's own price moves **along** the curve (extension or contraction); only other conditions **shift** it (increase or decrease). "The price of fish rose, so the demand curve shifted left" earns nothing.
- **Using supply to explain demand.** Pollution cutting the supply of fish, or a good harvest, changes supply, not demand. Examiners saw answers that turned a question on supply into one on demand, and the other way round: check which curve the question names.
- **Getting the direction wrong for substitutes and complements.** A dearer substitute **increases** demand; a dearer complement **decreases** it. Say the chain out loud before choosing.

- **Only giving one direction.** In a question on two products (cigarettes and fresh fruit), answers lost marks by saying what happens to one but not the other. State the change for **each**.
- **Getting the order of events backwards.** An increase in demand causes the price to rise; a higher price does not cause demand to fall in the same step. Keep cause and effect in order.
- **Writing "a change in price"** when the question asks what **increases** willingness and ability to buy. Say "a **fall** in the price".
- **Answering about the whole economy** (total demand, inflation) when the question is about demand for **one product**.
- **Shifting the curve the wrong way on a diagram.** A decrease in demand is a shift to the **left**, towards the origin.
- **Forgetting "willing and able"** in a definition. Wanting a product is not demand without the ability to pay.

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## How to get the marks

- **Multiple choice is 1 mark with no penalty for a wrong answer**, so never leave one blank. Watch for **not** in bold, and ask "own price or not?" first.
- **Identify** means name or pick out; **Define** means the exact meaning: "willingness and ability to buy at a given price over a period of time".
- **Explain** (4 marks) means two causes, each with a reason (1 + 1, 1 + 1). Name the cause with its direction ("a **rise** in incomes") and then say why demand changes.
- **Analyse** (6 marks) means chains of reasoning: point → why → a further reason or example, three times. "Demand increases" and "demand decreases" are each credited only once, so the other marks must come from different points and reasons. Name the relationship (substitute, complement) and the direction of the change. A list is capped.
- **Discuss** (8 marks) means both sides, each developed, then a justified judgement.
- **Use the terms precisely:** extension and contraction for movements, increase and decrease in demand for shifts, substitutes and complements, conditions of demand, market demand.
- **Diagrams:** label the axes **price** and **quantity** (demanded), label each curve (D, D1), draw the new curve on the correct side and show the direction with an arrow. When a question asks only for a diagram, you don't need to write an explanation as well.
- **Use the context:** name the product in the question (fish, coffee, Chinese food) in your answer, and use examples of its substitutes and complements.
- **If more causes are given than asked for**, only the first few are marked, so put your best two first.

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## Quick check

1. What would cause a contraction in demand for tea?
  - **A** a fall in the price of coffee
  - **B** a rise in the price of tea
  - **C** a fall in consumers' incomes

- **D** a rise in the price of sugar
2. At a price of \$6, Ana buys 4 cinema tickets a month and Ben buys 7. At \$8, Ana buys 2 and Ben buys 5. They are the only two buyers. Find the market demand at each price and the size of the contraction when the price rises from \$6 to \$8.
3. For demand for mobile phones, say whether each is a movement along the curve or a shift, and in which direction: (a) the price of mobile phones falls; (b) consumers' incomes rise; (c) the price of mobile data rises.
4. Explain two causes of an increase in demand for umbrellas. **[4]**

## Answers

1. **B.** A change in tea's own price is a movement, and a rise gives a contraction. A (cheaper substitute), C (lower incomes) and D (dearer complement) all shift the curve: they are decreases in demand. (1)
2. At \$6:  $4 + 7 = 11$  tickets. At \$8:  $2 + 5 = 7$  tickets. The contraction is  $11 - 7 = 4$  tickets a month.
3. (a) Movement: an extension (down the curve). (b) Shift to the right: an increase in demand (phones are more affordable). (c) Shift to the left: a decrease in demand (mobile data is a complement).
4. One cause is the start of a rainy season (1): people need umbrellas more at that time, so more are demanded at every price (1). Another cause is a rise in the price of raincoats, a substitute (1): umbrellas become relatively cheaper, so people switch to them and demand for umbrellas increases (1).

## Past questions to try

- 0455/12/M/J/22 Q6: which change shifts a demand curve to the right.
- 0455/12/F/M/24 Q4: spotting a contraction between points on two demand curves.
- 0455/23/M/J/23 Q3: part (c), two causes of a fall in demand for a product.
- 0455/23/O/N/24 Q3: part (b), substitutes and complements.