



# AQA - A Level Economics

Individuals, Firms, Markets and Market Failure

4.2 Production, costs and revenue

Worked Examples

# Contents

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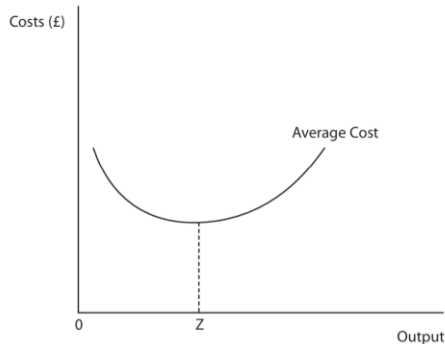
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- Production, costs and revenue

## 4. Production, costs and revenue

### Exam Style Question 1

The following illustrates the daily average cost curve for a doughnut producer:



- (a) Explain what happens to total cost at output levels greater than Z. [2]
- (b) At output levels greater than Z, which **one** of the following correctly identifies what will happen to the cost? [1]

	Average fixed cost	Average variable cost	Marginal cost
<input type="radio"/> A	Falls	Falls	Rises
<input type="radio"/> B	Falls	Rises	Rises
<input type="radio"/> C	Rises	Rises	Falls
<input type="radio"/> D	Rises	Rises	Rises

- (c) For a luxury doughnut producer, the average selling price is £2. The average variable cost is 40% of the selling price and its fixed cost per day is £300. Calculate total costs per day assuming it produces 400 doughnuts per day. [2]

## 4. Production, costs and revenue

### Exam Style Question 1

**Answer:**

- (a) Explain what happens to total cost at output levels greater than Z.

At output levels beyond point Z, **total cost continues to rise but at an increasing rate.** [1] This is because **marginal cost (MC) is greater than average cost (AC)**, which causes AC to rise. [1] As each additional unit costs more to produce than the average, **total costs (TC) increase more steeply.**

- (b) At output levels greater than Z, which one of the following correctly identifies what will happen to the cost?

**Correct answer: B [1]**

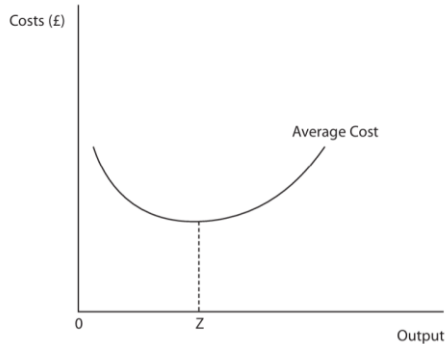
- **Average fixed cost (AFC)** falls – fixed costs (like rent) stay the same, but they're spread over more units.
- **Average variable cost (AVC)** rises – because workers and machines are overused, causing inefficiencies.
- **Marginal cost (MC)** rises – each additional unit produced becomes more expensive due to diminishing returns.



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## 4. Production, costs and revenue

### Exam Style Question 1

(c) Calculate total costs per day assuming the firm produces 400 doughnuts per day.

We are told:

- Selling price per doughnut = £2
- AVC = 40% of selling price  $\rightarrow 0.40 \times £2 = £0.80$
- Fixed cost = £300
- Output = 400 doughnuts

Step-by-step calculation:

1. Variable cost (TVC) =  $AVC \times Q = £0.80 \times 400 = £320$
2. Total cost (TC) = Fixed cost + Variable cost =  $£300 + £320 = £620$

Answer: £620 total costs per day [2]

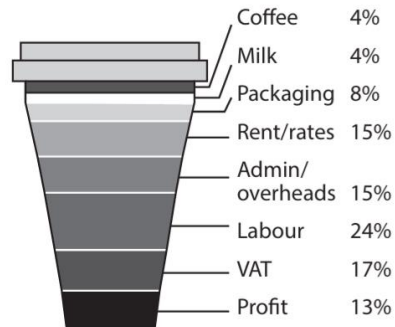


## 4. Production, costs and revenue

### Exam Style Question 2

Figure 1 shows the distribution of the revenue received from the sale of a Starbucks cappuccino drink priced at £2.27 in 2015.

Figure 1



(Source: adapted from Allegra strategies research and analysis, reported in The Times, 27th January 2015)

(a) Which **one** of the following is a fixed cost to Starbucks? [1]

- A Coffee
- B Milk
- C Packaging
- D Rent

(b) Explain the difference between fixed costs and variable costs. [2]

(c) With reference to Figure 1, calculate the profit (in pence) for a cappuccino drink. You are advised to show your working. [2]

## 4. Production, costs and revenue

### Exam Style Question 2

Answer:

(a) Which one of the following is a fixed cost to Starbucks?

✓ Answer: D – Rent

Explanation:

A fixed cost is a cost that stays the same no matter how many units are produced or sold. For example, Starbucks pays rent for its shop locations whether it sells 1 or 1,000 drinks a day.

(b) Explain the difference between fixed costs and variable costs.

Answer:

- **Fixed costs** are costs that do not change with the level of output. They are the same even if nothing is produced. [1]
- **Variable costs**, on the other hand, **do change** depending on output. The more a firm produces, the higher these costs will be. [1] Examples include coffee beans, milk, and takeaway cups.

(c) With reference to Figure 1, calculate the profit (in pence) for a cappuccino drink.

Step-by-step working:

- Selling price = **£2.27**
- Profit margin = **13%** (from the diagram)

Profit = 13% of £2.27

➡ 13% of 227p =  $(13 \div 100) \times 227 = 29.51p$

✓ Answer: **29.5 pence** (rounded to 1 decimal place)

## 4. Production, costs and revenue

### Exam Style Question 3

The following table shows the number of new technology 'Tech Companies' based at East End Tech City, a technology cluster located in East London.

Year	Number of Tech Companies
2009	15
2010	85
2011	200
2012	5 000
2013	15 600

(Source: UHY Hacker Young, <http://www.uhy-uk.com/news-events/news/londons-silicon-roundabout-remains-top-area-uk-start-ups/>)

The data suggest that Tech Companies in East London are experiencing

[1]

- A External economies of scale
- B High commercial barriers to entry
- C Financial diseconomies of scale
- D Diminishing marginal returns
- E An increasing level of merger activity

Answer

Explanation [3]



## 4. Production, costs and revenue

### Exam Style Question 3

Answer:

Answer: A – external economies of scale. [1]

Explanation:

**External economies of scale** happen when **the whole industry or region grows**, causing costs to fall for all firms, not just one individual firm. [1] This usually occurs when businesses cluster together, share resources, and benefit from things like improved infrastructure, knowledge sharing, or having skilled workers nearby. [1]

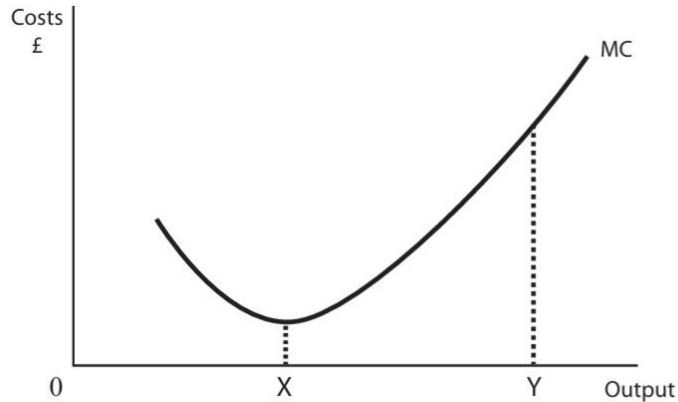
In this case, the number of tech companies in East London skyrocketed from just 15 in 2009 to over **15,600 by 2013**. [1] That's a huge growth, a sign of external economies of scale kicking in.

So, firms are moving there not because it's expensive or hard to get in, but because the **more that join, the better it gets** for everyone.

## 4. Production, costs and revenue

### Exam Style Question 4

Which of the following best explains the shape of the short run marginal cost curve between X and Y?



[1]

- A The law of diminishing marginal returns
- B The law of increasing marginal product
- C Average costs are rising
- D Average variable costs are rising
- E Economies of scale

Answer

Explanation [3]



## 4. Production, costs and revenue

### Exam Style Question 4

Answer:

✓ Answer: A – The law of diminishing marginal returns. [1]

Explanation:

**Definition and knowledge:**

The shape of the marginal cost (MC) curve between points X and Y can be explained by the **law of diminishing marginal returns**.

In the **short run**, at least one factor of production (like capital or machinery) is fixed. [1] So, when a firm keeps adding more of a **variable factor** (like workers), there's a point where each new worker **adds less extra output** than the one before. [1]

**Application**

Imagine a small doughnut shop with one machine. At first, adding extra bakers means more doughnuts are made faster. But eventually, the kitchen gets cramped, the bakers get in each other's way, and the machine becomes a bottleneck. So even though more people are working, it costs more to make each extra doughnut. [1]

Please see the **'4.1 Production, costs and revenue Revision Notes'** pack for detailed notes.

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