OCR – A Level Economics

Component 1 – Microeconomics

3. Business objectives

Worked Examples

Contents

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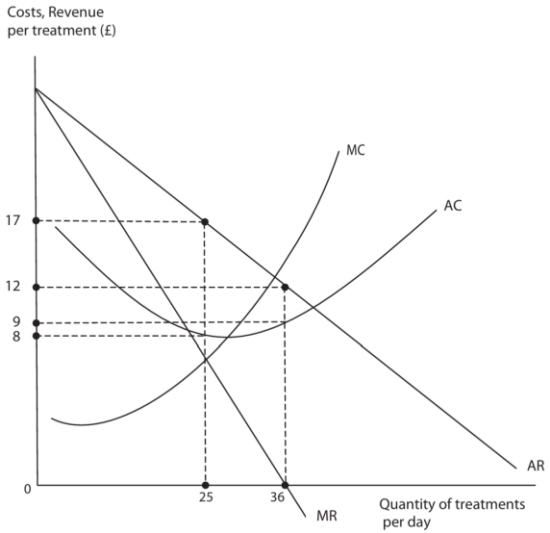
3.2 Business objectives

Exam Style Question 1

Emily owns and operates a nail ink salon. The diagram shows the cost and revenue curves for treatments at her nail ink salon. Initially, Emily sets her price to maximise profits.



(a) Calculate the **change in total supernormal profit** if Emily changes her objective from profit maximisation to revenue maximisation. You are advised to show your working. **[4]**

(b) Emily now decides to change her objective from revenue maximisation to sales maximisation. This change will lead to:

[1]

- ◯ **A** A decrease in the number of customers
- ◯ **B** A decrease in the price of treatments
- ◯ **C** An increase in productive efficiency
- ◯ **D** An increase in the level of profit

3.2 Business objectives

Exam Style Question 1

Answer:

(a) Calculate the change in total supernormal profit

To calculate **supernormal profit**, we use the formula:

Supernormal profit = (Price - Average Cost) × Quantity

At the profit maximisation point (MC = MR):

- Price = £17; Average Cost (AC) = £8; Quantity = 25

Supernormal profit = (17 - 8) × 25 = £225

At the revenue maximisation point (MR = 0):

- Price = £12; Average Cost (AC) = £9; Quantity = 36

Supernormal profit = (12 - 9) × 36 = £108

Change in supernormal profit:

225 - 108 = **£117 decrease**

✅ **Final answer:** The total supernormal profit decreases by **£117**. **[4]**

(b) Emily now decides to change her objective from revenue maximisation to sales maximisation. This change will lead to:

✅ **Correct answer: B** – a decrease in the price of treatments. **[1]**

Explanation:

Sales maximisation happens when **AR = AC**. At this point, the firm sells as much as it can without making a loss, which usually means charging **lower prices** to attract more customers. This helps clear stock or boost customer numbers but doesn't focus on making high profits.

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3.2 Business objectives

Exam Style Question 2

Lottie runs a tanning shop, and the following table shows her costs and revenue for one treatment at different price levels. Some parts of the table are left blank for your own calculations.

Number of customers per day	Price (£)			Total costs (£)	Marginal costs (£)
0	20			30	
1	18				2
2	16				3
3	14				4
4	12				6
5	10				10

At what price range would Lottie maximise her profits?

[1]

- ◯ **A** £20 or higher
- ◯ **B** £18-£20
- ◯ **C** £16
- ◯ **D** £12-£14
- ◯ **E** £10

Answer ☐

Explanation [3]

We've added more guidance, but for the exam, just fill out the table and use the last few lines as your explanation.

3.2 Business objectives

Exam Style Question 2

Answer:
At what price range would Lottie maximise her profits?

Profit maximisation: Marginal Revenue (MR) = Marginal Cost (MC)

But wait , we don't have MR directly, so here's the trick: When price drops as more customers are added, it suggests **marginal revenue is less than price**. So, we want to find the **last unit where MR ≥ MC** (or close).

Let's estimate MR by seeing how **total revenue** changes: (Remember: **Total Revenue (TR) = Price × Quantity**)

Number of customer per day	Price (£)	TR	MR	Total costs (£)	Marginal costs (£)
0	20	0	-	30	
1	18	18	18	32 (30+2)	2
2	16	32	14 (32-18)	35 (32+3)	3
3	14	42	10 (42-32)	39 (35+4)	4
4	12	48	6 (48-42)	45	6 ✅
5	10	50	1 (50-48)	55	10 ❌

At 4 customers: MR = MC = £6. That's the profit-max level of output. At this point, the price charged is £12. Therefore, answer is **D (£12-£14).**

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3.2 Business objectives

Exam Style Question 3

The management at a famous football club aim to promote the firm's success in matches as their primary objective. The firm's shareholders indicate at a meeting that they will accept low dividends on their shares on the condition that the club invests in new players. This indicates that the

[1]

- ◯ **A** Management is aiming for short-term gains in share prices
- ◯ **B** Management is profit satisficing
- ◯ **C** Management is profit maximising in the short run
- ◯ **D** Firm cannot make supernormal profits in the long run
- ◯ **E** Average variable cost of players is equal to the marginal revenue gained from their employment

Answer ☐

Explanation [3]

3.2 Business objectives

Exam Style Question 3

Answer:
✅ **B – Management is profit satisficing [1]**

Explanation:
Profit satisficing is when managers aim to make *just enough profit* to satisfy the basic expectations of owners or shareholders, while also pursuing other goals. **[1]**

In this case, the football club's management is more focused on *winning matches* than maximising profits. **[1]** The shareholders are even *willing to accept lower dividends* (payouts from profits) as long as the club invests in new players, clearly showing that **maximising profit isn't their top priority**. **[1]**

❌ **Knock out marks:**
- **A**: It's not about short-term gains in share prices – it's about team performance.
- **C**: Profit maximisation means squeezing every last penny of profit, but here they're choosing to invest in players instead.
- **D**: There's no info here about long-run profit limits.
- **E**: That's a technical point about marginal analysis, but this question is about business objectives, not cost structures.

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3.2 Business objectives

Exam Style Question 4

The table gives weekly information about the possible short run output, costs and revenue of a firm making military equipment. Some cells have been left blank for your own workings.

Output per week	Total revenue (£millions)	Average revenue (£millions)	Total cost (£millions)	Average cost (£millions)	Marginal cost (£millions)
0	0	-	10	-	-
1	40	40		25	15
2	60				9
3	78				18
4	96				44
5	105				54

Which level of weekly output would mean that the firm is sales maximising?

[1]

- ◯ **A** 1
- ◯ **B** 2
- ◯ **C** 3
- ◯ **D** 4
- ◯ **E** 5

Answer ☐

Explanation [3]

3.2 Business objectives

Exam Style Question 4

Answer:
✅ **D – 4. [1]**

Explanation: 3 marks

2 marks for filling in the table correctly.

Output per week	Total revenue (£m)	Average revenue (£m)	Total cost (£m)	Average cost (£m)	Marginal costs (£m)
0	0	-	**10**	-	-
1	40	**40**	**25 (10+15)**	**25**	15
2	60	**30 (60/2)**	**34 (25+9)**	**17 (34/2)**	9
3	78	**26 (78/3)**	**52 (34+18)**	**17.3 (52/3)**	18
4	96	**24 (96/4)**	**96 (52+44)**	**24 (96/4)**	44
5	105	**21 (105/5)**	**150 (96+54)**	**30 (150/5)**	54

Sales maximisation is a business objective where a firm wants to sell as much output as possible **without making a loss**. This happens at the output level where **total revenue (TR) = total cost (TC)**, also known as the **break-even point**. **At output = 4; TR = TC = £96 million. [1]**

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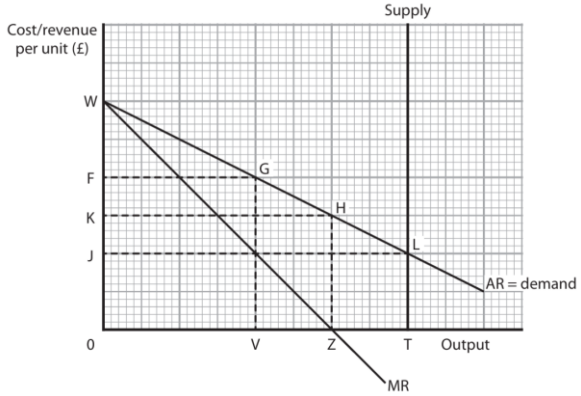
Exam Style Question 5

The diagram shows the supply, demand and marginal revenue schedules for parking spaces in a local government car park.



What single price will ensure that the local government maximises total revenue?

[1]

- ◯ **A** Zero
- ◯ **B** 0J
- ◯ **C** 0K
- ◯ **D** 0F
- ◯ **E** 0W

Answer ☐

Explanation [3]

3.2 Business objectives

Exam Style Question 5

Answer:
✅ **C – 0K. [1]**

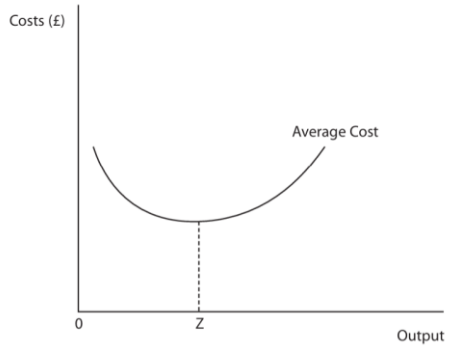
Explanation:
To **maximise total revenue**, the local government needs to set the **price where marginal revenue (MR) = 0**. **[1]**

Why? Because:
Total revenue (TR) increases as long as **MR is positive**. **[1]**
TR is maximised when **MR = 0**. After this point, MR becomes negative, which means each extra unit sold brings in *less* revenue than before, actually reducing total revenue. **[1]**

3.2 Business objectives

Exam Style Question 6

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
◯ **A**	Falls	Falls	Rises
◯ **B**	Falls	Rises	Rises
◯ **C**	Rises	Rises	Falls
◯ **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]**

3.2 Business objectives

Exam Style Question 6

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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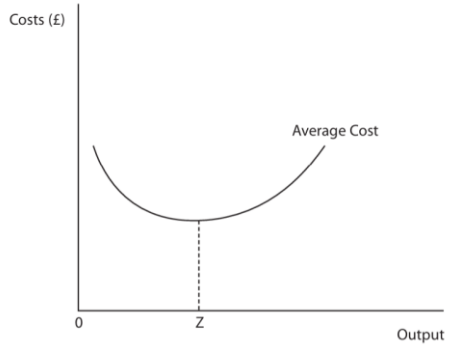
3.2 Business objectives

Exam Style Question 6

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
◯ **A**	Falls	Falls	Rises
◯ **B**	Falls	Rises	Rises
◯ **C**	Rises	Rises	Falls
◯ **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]**

3.2 Business objectives

Exam Style Question 6

(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 → 0.40 × £2 = £0.80**
- **Fixed cost = £300**
- **Output = 400 doughnuts**

✅ **Step-by-step calculation:**

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

Answer: £620 total costs per day [2]

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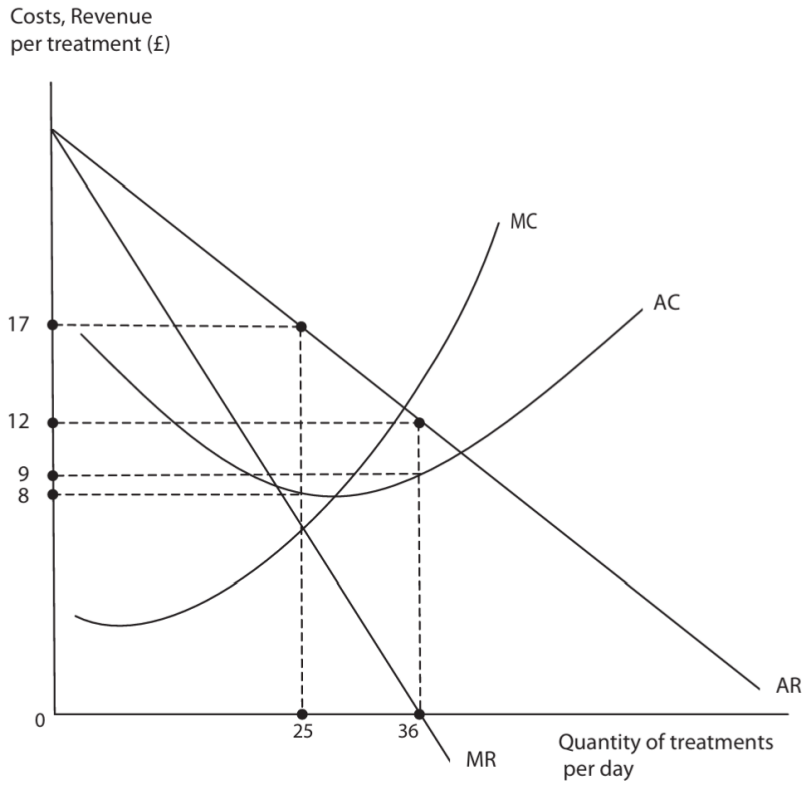
Exam Style Question 7

Emily owns and operates a nail ink salon. The diagram shows the cost and revenue curves for treatments at her nail ink salon. Initially, Emily sets her price to maximise profits.

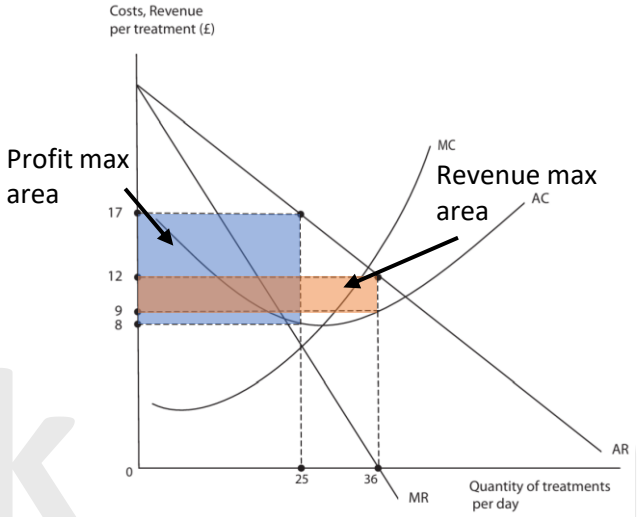


Calculate the **change in total supernormal profit** if Emily changes her objective from profit maximisation to revenue maximisation. You are advised to show your working. **[4]**

3.2 Business objectives

Exam Style Question 7

Answer:



Step 1: Supernormal profit = (Price – Average Cost) x Quantity

Step 2: Profit maximisation (where MC = MR)

- Price = £17
- Average cost = £8

Supernormal profit = (17 – 8) x 25 = £225

Step 3: Revenue maximisation (where MR = 0)

- Price = £12
- Average cost = £9

Supernormal profit = (12 – 9) x 36 = £108

Step 4: Calculate the change

Change in supernormal profit = £108 - £225 = **-£117 [4]**

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Exam Style Question 8

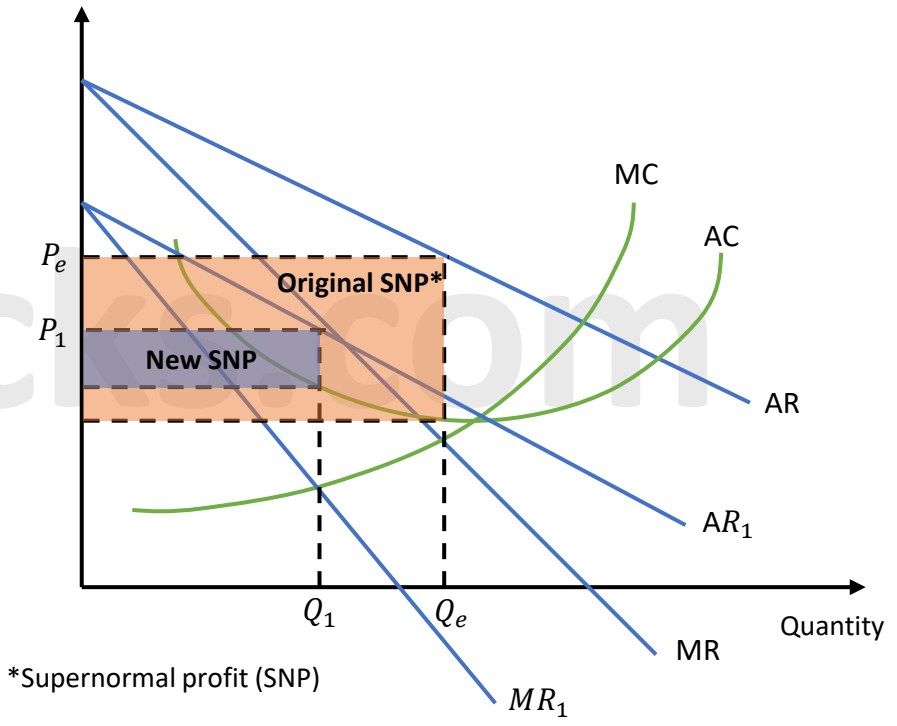
In 2015 JCB, the construction equipment manufacturer, experienced a 6% fall in revenue. This resulted from a reduction in sales of construction equipment to emerging markets.

Draw a cost and revenue diagram to show the likely impact of a reduction in sales of construction equipment on JCB's profits. **[4]**

3.2 Business objectives

Exam Style Question 8

Answer:



*Supernormal profit (SNP)

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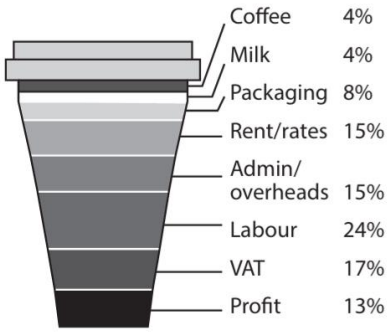
3.2 Business objectives

Exam Style Question 9

Figure 1 shows the distribution of the revenue received from the scale 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]**

3.2 Business objectives

Exam Style Question 9

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 ÷ 100) × 227 = **29.51p**
✅ **Answer: 29.5 pence** (rounded to 1 decimal place)

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Exam Style Question 10

Blackberry made a loss of $4.4 billion in quarter 3 (Q3), 2013 but continued to operate.

Explain **one** condition under which loss-making firms might continue to operate in the short-run. **[4]**

3.2 Business objectives

Exam Style Question 10

Answer:
Knowledge/understanding
A firm might continue to operate in the **short-run** even if it's making a loss, **as long as it can cover its average variable costs (AVC)**. **[1]**

This is because in the short-run, **fixed costs** (like rent, machinery, or salaries of permanent staff) must be paid no matter what , even if the firm shuts down. These are called **sunk costs**.

So, if the **price (or average revenue)** is **greater than the AVC**, the firm can still make a **contribution** towards covering fixed costs, which is better than shutting down and making an even bigger loss. **[1]**

Application
Let's say Blackberry was making a loss but could still cover its variable costs (like materials, electricity, and wages for hourly workers). In that case, it made sense to keep going **for now** in the hope things improve. **[1]**

Analysis
Key condition: Operate in the short run **if Price (AR) ≥ AVC**, because shutting down would mean an even bigger loss. **[1]**

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3.2 Business objectives

Exam Style Question 11

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]

3.2 Business objectives

Exam Style Question 11

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]**

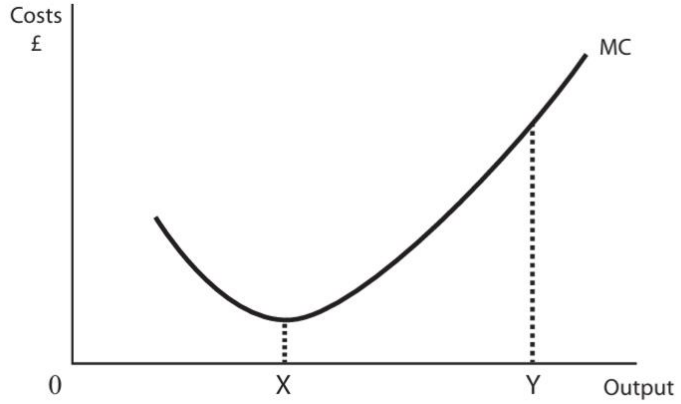
In this case, the number of tech companies in East London skyrocketed from just 15 in 2009 to over **15,600 by 2013. [1]** That's a huge growth , a sign of external economies of scale kicking in.

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.

Exam Style Question 12

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]

3.2 Business objectives

Exam Style Question 12

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]**

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