

3.2 Short-Run Production Costs

Name: _____ Class: _____ Date: _____ **Total: 10 marks**

KEY WORDS total cost 总成本 • fixed cost 固定成本 • marginal cost 边际成本
• variable cost 可变成本 • fixed 固定

Objective

Build the skills to answer exam questions on **short-run production costs**.

You must be able to:

- distinguish **fixed costs** 固定成本 from **variable costs** 可变成本
- calculate **total cost**, **average fixed cost**, **average variable cost**, and **average total cost**
- calculate **marginal cost** 边际成本 as the change in total cost per extra unit
- explain why MC cuts AVC and ATC at their minimum points

1 Worked examples

Study these first. Each one shows the method for a question type used later.

■ Cost types

Fixed costs do not change with output; **variable costs** do. $TC = FC + VC$.

■ Average costs

$$AFC = \frac{FC}{Q}, AVC = \frac{VC}{Q}, ATC = \frac{TC}{Q}.$$

■ Marginal cost

$MC = \frac{\Delta TC}{\Delta Q}$. The MC curve cuts both AVC and ATC at their **minimum** points:
while MC is below an average, the average falls; above it, it rises.

2 Practice

2.1 State the difference between fixed and variable costs. [2]

2.2 At $Q = 10$, fixed cost is \$100 and variable cost is \$150. Find the average total cost.[2]

2.3 State the point on the ATC curve where the MC curve crosses it. [1]

3 Exam-style questions

3.1 Average total cost is [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** $TC \times Q$
B TC/Q
C $MC \times Q$
D FC/Q

3.2 The MC curve crosses the ATC curve at ATC's [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** maximum
B minimum
C starting point
D end point

3.3 A firm's total cost rises from \$200 (at $Q = 20$) to \$215 (at $Q = 21$).

- (a) Find the marginal cost of the 21st unit. [1]
(b) Find the average total cost at $Q = 20$. [1]
(c) Since MC exceeds ATC here, state whether ATC is rising or falling. [1]