

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

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

- 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

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

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

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

$MC = \frac{\Delta TC}{\Delta Q}$. 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.

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

①

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

3.1 Average total cost is [1]

- ### 3.2 The MC curve crosses the ATC curve at ATC's

- 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]

②

Solutions

2.1 fixed costs do not change with output; variable costs rise as output rises.

2.2 $TC = 100 + 15Q = 250$; $ATC = \frac{250}{10} = \$25$.

2.3 at its minimum point.

3.1 B.

3.2 B.

3.3 (a) $MC = \frac{215 - 200}{1} = \15 . (b) $ATC = \frac{200}{20} = \$10$. (c) rising (MC is above ATC).