

## 5.4 Costs

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

Total: 27 marks

**KEY WORDS** break-even 盈亏平衡 • fixed costs 固定成本 • contribution 贡献  
• margin of safety 安全边际 • break-even point 盈亏平衡点

### Objective

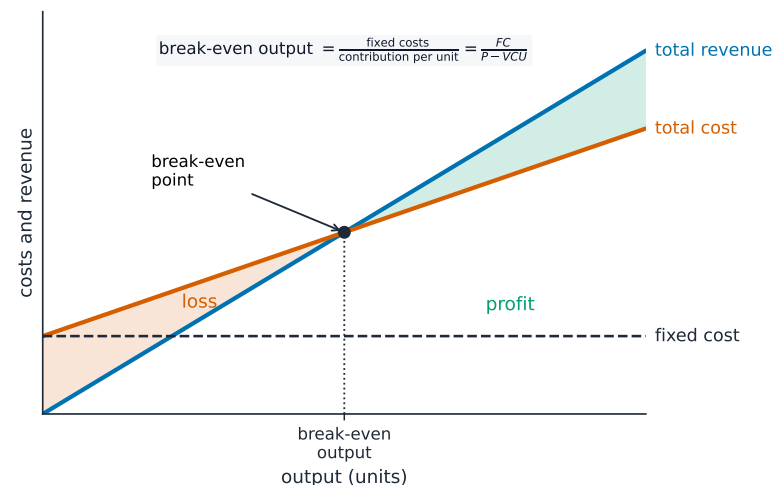
Build the skills to answer exam questions on **costs** 成本 — **fixed, variable, direct and indirect** 固定、可变、直接、间接 costs, **contribution** 贡献, **break-even** 盈亏平衡, and the **margin of safety** 安全边际.

You must be able to:

- classify costs and calculate contribution per unit
- calculate the **break-even output** and the **margin of safety**
- analyse the uses and limitations of break-even analysis

### 1 Worked examples

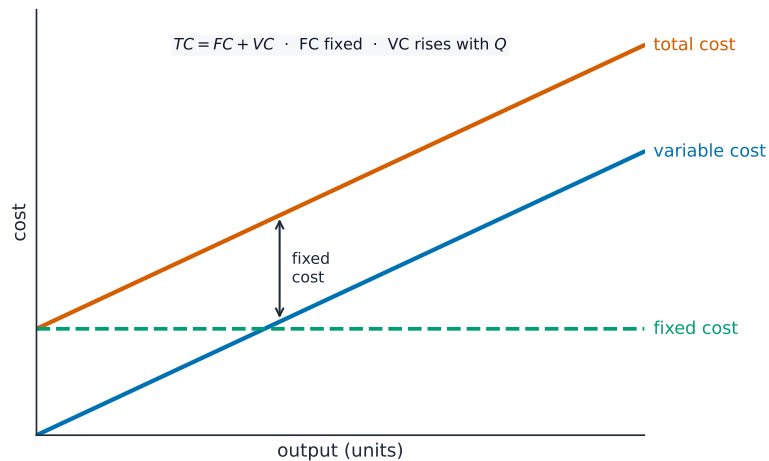
#### ■ Contribution and break-even



*Break-even is where total revenue equals total cost*

contribution per unit = selling price – variable cost      break-even =  $\frac{\text{fixed costs}}{\text{contribution per unit}}$

- **Worked:** sell at \$20, variable cost \$12 → contribution = \$8. Fixed costs \$40,000 → break-even =  $\frac{40000}{8} = 5,000$  units.
- **Margin of safety** = actual output – break-even output. At 6,000 units →  $6000 - 5000 = 1,000$  units.
- **Fixed** costs don't change with output (rent); **variable** costs do (materials).



Cost classification:  $\text{total cost} = \text{fixed cost} + \text{variable cost}$

**Answer shapes:** AO1 + AO2 + AO3 (reasoning chain) + AO4 (a supported judgement *in context*).

## 2 Practice

**2.1** Define the term *fixed cost*. [2]

---



---

**2.2** A product sells for \$18 and has a variable cost of \$11. Calculate the contribution per unit. [2]

---



---

**2.3** State the difference between a *direct* and an *indirect* cost. [2]

---



---

## 3 Exam-style questions

**3.1** Explain one limitation of break-even analysis. [3]

---



---



---

**3.2** A firm sells a product for \$25. The variable cost is \$15 per unit and fixed costs are \$50,000.

(a) Calculate the contribution per unit. [2]

---



---

(b) Calculate the break-even output. [2]

---



---

(c) The firm produces 7,000 units. Calculate the margin of safety. [2]

---



---

### 3.3 Evaluate the usefulness of break-even analysis to a small business.

[12]

## Solutions

Business answers are marked by **level of response** against the assessment objectives: award **AO1** knowledge, **AO2** application, **AO3** analysis and **AO4** evaluation.

**2.1** a cost that does not change with the level of output, such as rent (2 for a clear definition; 1 for a partial idea).

**2.2** \$18 – \$11 = \$7 per unit (2; award 1 for a correct method with the wrong figure).

**2.3** a direct cost can be clearly linked to one product (its materials); an indirect cost (overhead) cannot, e.g. a manager's salary (2 for a clear difference; 1 for a partial idea).

**3.1 [3] AO1** 1 — state a limitation (assumes price and costs stay constant; assumes all output is sold; costs are not always neatly fixed/variable). **AO2** up to 2 — develop it, e.g. it assumes every unit made is sold → but unsold stock means real profit is lower than the chart shows → decisions can be misled (2 developed / 1 limited).

**3.2** (a)  $\$25 - \$15 = \$10$  contribution per unit (2). (b) break-even =  $\frac{50000}{10} = 5,000$  units (2; allow follow-through from (a)). (c) margin of safety =  $7000 - 5000 = 2,000$  units (2; allow follow-through from (b)).

**3.3 [12] AO1 2 / AO2 2 / AO3 2 / AO4** up to 6. **Useful:** quick and simple, shows the break-even point and margin of safety, helps set output and price targets, supports a loan application. **Limited:** assumes constant price and costs and that all output is sold; real markets change; it ignores quality and competition. **Judgement:** a useful planning tool for a small firm, especially at start-up, but its assumptions are unrealistic, so it should guide decisions, not make them alone — its value depends on how stable the firm's prices and costs are.