

5.1 Operations and break-even: supported rehearsal

Name: _____ Class: _____ Date: _____

Total: 6 marks

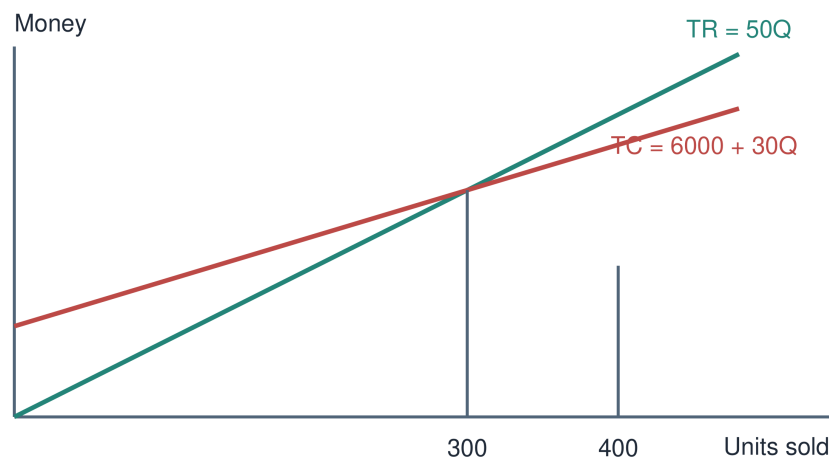
Objective

Supported preparation: Compare production methods and location factors; Calculate break-even and evaluate operational choices. This is original rehearsal, not completion of the assessed task.

1 Key knowledge and worked examples

Job production suits customized work; batch production groups similar jobs; flow production suits repeated standardized output. Location trades access, labour, transport and costs. Break-even uses constant price and variable cost per unit, fixed costs and output sold.

Break-even under constant unit price and cost



Break-even: 300 units. Margin of safety at 400 units: 100.

Task: fixed cost 4,800 units, price 40 units per item, variable cost 24 units per item, expected sales 360 items. Calculate break-even and margin of safety, then evaluate capacity of 280.

Contribution per item = price – variable cost = $40 - 24 = 16$ units/item. Break-even quantity = fixed cost / contribution = $4,800 / (16 \text{ units/item}) = 300$ items. Margin of

safety=expected sales–break-even=360–300=60 items. Capacity 280 is below break-even, so the assumed 360 sales are infeasible without changing capacity or costs. HL may examine quality, contingency and information systems; claims require operational evidence.

2 Practice

2.1 For the worked case, identify the evidence and a conclusion it can support. Explain one material limit. [3]

3 Exam-style questions

3.1 Price falls from 40 to 36 while variable cost stays 24 and fixed cost stays 4,800. Recalculate break-even. Give a reasoned answer, evidence or method, and a relevant qualification. [3]

Solutions

2.1 Contribution per item=price–variable cost=40–24=16 units/item. Break-even quantity=fixed cost/contribution=4,800/(16 units/item)=300 items. Margin of safety=expected sales–break-even=360–300=60 items. Capacity 280 is below break-even, so the assumed 360 sales are infeasible without changing capacity or costs. HL may examine quality, contingency and information systems; claims require operational evidence. Authored points for identifying relevant evidence, explaining a supported inference and a material limit.

3.1 Contribution per item=price–variable cost=36–24=12 currency units/item. Break-even quantity=fixed cost/contribution=4,800/12=400 items. At expected sales of 360, margin of safety=360–400=–40 items; the model predicts a shortfall. Capacity and demand must be checked again. Authored points for a relevant judgement, reason tied to the case and justified qualification or method. Accept a supported alternative.