Solutions

Marking: **K** knowledge, **App** use of the case or data, **An** analysis (a chain of reasons: cause, then effect), **Ev** evaluation (a judgement with a reason). In calculations, **M1** is for the method and **A1** for the answer; **B1** is an independent mark.

Each answer shows the steps, then the **result**.

2.1

fixed: (a), (c), (f)

variable: (b), (d), (e)

2.2

$FC = TC$ at $Q = 0$: **50**

MC: 30, 20, 30, 50

$ATC = \dfrac{180}{4} = \mathbf{45}$; $AFC = \dfrac{50}{4} = \mathbf{12.5}$

2.3

MP: 30, 40, 30, 20

diminishing returns begin with the 3rd worker

2.4

price < AVC

shut down: each unit loses money even before fixed costs

3.1

(a) MP: 40, 35, 30, 25; $MC = \dfrac{120}{MP}$: £3.00, £3.43, £4.00, £4.80

(b) hire while $MC \le P$: $3.43 < 3.60 < 4.00$, so **7** bakers

(c) the ovens are fixed, so each extra baker adds less output (diminishing returns); the same wage buys fewer loaves, so each loaf costs more

3.2

(a) producing: $(4.10 - 3.80) \times 800 =$ £**240** a day; shut down: lose fixed costs $(4.10 - 3.20) \times 800 =$ £**720** a day

(b) keep producing: price covers AVC and part of fixed costs; in the long run price must reach ATC, or the firm should leave

3.3

(a) $ATC = \dfrac{3{,}000}{Q} + 1.20$: £**2.70** at 2,000; £**1.95** at 4,000

(b) $\dfrac{3{,}000}{Q} + 1.20 = 2.60$: $Q = \dfrac{3{,}000}{1.40} = \mathbf{2{,}143}$ loaves

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(c) **4**: worth it only if sales will grow past about 2,143 a week (App); economy: bulk flour buying and fuller use of large ovens lower costs (K); diseconomy: delivery to shops and loss of freshness, or harder management (An); judgement with a condition, e.g. build only when sales are firmly above 2,500 a week (Ev). **2–3**: reasons with little use of the numbers. **1**: one relevant point.