Solutions

Marking: **M1** a correct method, **A1** the correct answer.

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

2.1

- an increase of 7.5% multiplies by $1 + 0.075$

$$\mathbf{1.075}$$

2.2

- 5000×1.03^2

$$= \$\mathbf{5304.50}$$

2.3

- a fall of 6% gives a multiplier of 0.94, so 8000×0.94^3

$$= 6644.672 = \mathbf{6645}$$

2.4

- $1 - 0.12 = \mathbf{0.88}$

2.5

- multiplier 1.032, 4 years: 2500×1.032^4
- $= 2835.690\ldots = \$\mathbf{2835.69}$

3.1

(a)

- a fall of 18% gives a multiplier of 0.82
- $24\,000 \times 0.82^3$

$$= 13\,232.83\ldots = \$\mathbf{13\,233}$$

(b)

- try successive years: $24\,000 \times 0.82^4 = \$10\,850.92$, still above \$10,000
- $24\,000 \times 0.82^5 = \$8897.76$, which is below \$10,000

$$\mathbf{5} \text{ years}$$

3.2

- the multiplier is 1.05, so $P \times 1.05^2 = 3307.50$
- $P = 3307.50 \div 1.1025$

$$= \$\mathbf{3000}$$

3.3

- new price = original $\times 1.15$, so original = $69 \div 1.15$
- $= \$\mathbf{60}$

3.4

- $20\,000 \times 0.9^5$
- $= 11\,809.8 \approx \mathbf{11\,810}$

3.5

- A: interest $= 8000 \times 0.04 \times 3 = \$960$
- B: $8000 \times 1.04^3 = \$8998.91$, so interest = \$998.91
- difference $= 998.91 - 960 = \$\mathbf{38.91}$