

Simple and Compound Interest

Maths

Level 2

Exam-style practice · 11 questions · 30 marks · Calculator allowed

Remember

Simple interest: interest each year = amount $\times$ rate. £2,000 at 3% for 4 years: $60 \times 4 = £240$ interest; total £2,240.

Compound interest: the interest is added each year and the next year's interest is worked out on the new total. £2,000 at 3% for 2 years: $2,000 \times 1.03 = 2,060$; $2,060 \times 1.03 = 2,121.80$. Quick way: $2,000 \times 1.03^2$.

Loans: total repaid = monthly payment $\times$ months. Cost of borrowing = total repaid – amount borrowed.

Show every year if the question says so – the method marks are in the working.

Section A – Simple interest

1. Aisha puts £1,500 into an account paying 2.5% simple interest a year. How much interest does she earn in 3 years? (2 marks)

2. A £4,000 loan charges 6% simple interest a year for 5 years. What is the total amount to repay? (2 marks)

3. Ben's savings of £850 earned £51 in simple interest over 2 years. What was the annual interest rate? (2 marks)

Section B – Compound interest

4. £3,000 is invested at 4% compound interest. Work out the balance after each of the first 3 years. Round each year to the nearest penny. (3 marks)

5. A £12,000 car loses 15% of its value each year. What is it worth after 3 years? (3 marks)

6. Which earns more on £5,000 over 3 years: 3.5% simple interest or 3.2% compound interest? Show the working for both. (4 marks)

7. Use a multiplier to find the value of £2,400 after 5 years at 2.8% compound interest. (2 marks)

8. A town's population of 24,000 grows by 2% a year. Estimate the population in 4 years' time. (2 marks)

Section C – Comparing accounts and loans

9. Two accounts: Account P pays 3.6% simple interest. Account Q pays 3.4% compound interest. Nadia will invest £8,000 for 4 years. Which account should she choose, and by how much is it better? (4 marks)

10. A £6,000 loan can be repaid over 2 years at £272 a month, or over 4 years at £148 a month. How much more does the 4-year option cost in total? (3 marks)

11. A credit card charges 1.9% compound interest a month. Callum owes £1,200 and pays nothing for 3 months. How much does he owe then, and how much interest has been added? (3 marks)

Simple and Compound Interest – Answers

Level 2 · Working shown so you can check your method, not just the final number.

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Section A

- $1,500 \times 0.025 = \text{£}37.50$ a year $\times 3 = \text{£}112.50$.
- $4,000 \times 0.06 \times 5 = \text{£}1,200$. Total = **£5,200**.
- $\text{£}51$ over 2 years = $\text{£}25.50$ a year. $25.50 \div 850 \times 100 = 3\%$.

Section B

- Year 1: $3,000 \times 1.04 = \text{£}3,120$. Year 2: $3,120 \times 1.04 = \text{£}3,244.80$. Year 3: $3,244.80 \times 1.04 = \text{£}3,374.59$.
- $12,000 \times 0.85^3 = 12,000 \times 0.614125 = \text{£}7,369.50$.
- Simple: $5,000 \times 0.035 \times 3 = \text{£}525 \rightarrow \text{£}5,525$. Compound: $5,000 \times 1.032^3 = \text{£}5,495.52$. **Simple interest earns more** here, by $\text{£}29.48$.
- $2,400 \times 1.028^5 = 2,400 \times 1.14806 = \text{£}2,755.35$.
- $24,000 \times 1.02^4 = 24,000 \times 1.0824 = \text{£}25,978$ (accept 25,978–25,979).

Section C

- P: $8,000 \times 0.036 \times 4 = \text{£}1,152 \rightarrow \text{£}9,152$. Q: $8,000 \times 1.034^4 = 8,000 \times 1.14309 = \text{£}9,144.76$. **Account P** by **£7.24**.
- 2 years: $24 \times 272 = \text{£}6,528$. 4 years: $48 \times 148 = \text{£}7,104$. Extra = **£576**.
- $1,200 \times 1.019^3 = 1,200 \times 1.05809 = \text{£}1,269.71$. Interest added = **£69.71**.

Where Level 2 students lose marks on this topic

- Using simple interest for a compound question – adding 4% of the original amount every year instead of 4% of the growing balance.
- Rounding each year's balance to the nearest pound and carrying the rounded figure forward. Keep pence (or full accuracy) until the end.
- Forgetting that a depreciation question uses a multiplier below 1 ($\times 0.85$), not $\times 1.15$.