

Percentages

Maths **Level 2** Exam-style practice · 14 questions · 30 marks · Calculator allowed (as in the Level 2 calculator section)

Remember

Percentage of an amount: 15% of £80 = $0.15 \times 80 = £12$. **Increase by 12%:** multiply by 1.12.

Decrease by 30%: multiply by 0.70.

Percentage change: $(\text{change} \div \text{original}) \times 100$. **Reverse percentage:** if £84 is the price *after* a 30% reduction, the original was $84 \div 0.70 = £120$.

Show your working. In the real exam, method marks are awarded even when the final answer is wrong.

Section A – Percentage of an amount

1. A gym charges £48 a month. Members who pay yearly get 15% off the total. How much does a member save in a year by paying yearly? (2 marks)

2. A warehouse holds 3,600 parcels. 8% are damaged. How many parcels are **not** damaged? (2 marks)

3. Ayesha earns £2,150 a month. She pays 20% tax on the part of her income above £1,048 a month. How much tax does she pay each month? (3 marks)

Section B – Percentage increase and decrease

4. A café raises the price of a £3.20 coffee by 12.5%. What is the new price? (2 marks)

5. A sofa costs £899. In a sale it is reduced by 35%. Kwame has a voucher for a further £50 off the sale price. How much does he pay? (3 marks)

6. A care home's electricity bill was £1,240 last quarter. This quarter it has gone up by 6.5%. The manager has budgeted £1,300. Is the budget enough? Show how you decide. (3 marks)

7. A phone is advertised at £420 plus 20% VAT. A second shop sells the same phone at £510 including VAT. Which shop is cheaper, and by how much? (3 marks)

Section C – Percentage change

8. A nursery had 45 children in September and 54 in January. What is the percentage increase? (2 marks)

9. Dev bought a car for £6,500 and sold it two years later for £4,420. What was the percentage loss? (2 marks)

10. A school's attendance target is 96%. Last week 1,140 out of 1,200 students attended. Did the school meet its target? Show your working. (2 marks)

Section D – Reverse percentages and comparing offers

11. A jacket costs £63 after a 30% reduction. What was the original price? (2 marks)

12. After a 4% pay rise, Marcus earns £27,040 a year. What was his salary before the rise? (2 marks)

13. Two supermarkets sell the same 12-pack of drinks.
Shop A: £7.20, with 25% off. **Shop B:** £6.90, buy 2 packs and get the second half price. Priya needs 2 packs. Which shop is cheaper for her? Show your working. (3 marks)

14. Leon puts £2,000 into a savings account paying 3% compound interest a year. How much will be in the account after 2 years? Give your answer to the nearest penny. (3 marks)

Check before you finish: Have you written units (£, %) on every answer? Have you rounded money to 2 decimal places? Have you answered the actual question (e.g. "how much does he save", not "how much does he pay")?

Percentages – Answers

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

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Section A

1. Yearly total = $48 \times 12 = £576$. Saving = $0.15 \times 576 = \textbf{£86.40}$.
2. Damaged = $0.08 \times 3,600 = 288$. Not damaged = $3,600 - 288 = \textbf{3,312}$ (or $0.92 \times 3,600$).
3. Taxable = $2,150 - 1,048 = £1,102$. Tax = $0.20 \times 1,102 = \textbf{£220.40}$.

Section B

4. $3.20 \times 1.125 = \textbf{£3.60}$.
5. Sale price = $899 \times 0.65 = £584.35$. Minus voucher = **£534.35**.
6. $1,240 \times 1.065 = £1,320.60$. **No** – the bill is £20.60 over the £1,300 budget.
7. Shop 1: $420 \times 1.20 = £504$. Shop 2: £510. **Shop 1 is cheaper by £6**.

Section C

8. Change = 9. $9 \div 45 \times 100 = \textbf{20\% increase}$.
9. Loss = $6,500 - 4,420 = £2,080$. $2,080 \div 6,500 \times 100 = \textbf{32\% loss}$.
10. $1,140 \div 1,200 \times 100 = 95\%$. **No** – 95% is below the 96% target.

Section D

11. $63 \div 0.70 = \textbf{£90}$.
12. $27,040 \div 1.04 = \textbf{£26,000}$.
13. Shop A: $7.20 \times 0.75 = £5.40$ per pack; 2 packs = £10.80. Shop B: $6.90 + 3.45 = £10.35$. **Shop B is cheaper** (by 45p).
14. Year 1: $2,000 \times 1.03 = £2,060$. Year 2: $2,060 \times 1.03 = \textbf{£2,121.80}$. (Or $2,000 \times 1.03^2$.) A common error is adding 3% of £2,000 twice, giving £2,120 – that is *simple* interest.

Where Level 2 students lose marks on percentages

- Finding the discount but forgetting to subtract it from the original price.
- Using the original amount instead of the new amount as the base for a reverse percentage (e.g. 63×1.30 instead of $63 \div 0.70$).
- Not stating a conclusion in "is it enough / which is cheaper" questions – the final mark is for the decision.