Compound Interest, Growth and Decay

GCSE Mathematics • **Higher Tier** • Grades 6–7 • Non-calculator

Name: _____ Class: _____ Total: _____ / 66

Show all your working. Marks are given for correct method as well as the final answer.

1. Write down the multiplier for a 5% increase. **[1 mark]**

Answer: _____

2. Write down the multiplier for an 8% decrease. **[1 mark]**

Answer: _____

3. £1 000 is invested at 5% compound interest. Work out the value after 2 years. **[3 marks]**

Answer: _____

4. £2 000 is invested at 3% compound interest. Work out the value after 4 years, to the nearest penny. **[3 marks]**

Answer: _____

5. £500 is invested at 4% compound interest for 3 years. Work out the INTEREST earned. **[4 marks]**

Answer: _____

6. A car worth £12 000 depreciates by 15% a year. Work out its value after 2 years. **[3 marks]**

Answer: _____

7. A laptop worth £800 loses 20% of its value each year. Work out its value after 3 years. **[3 marks]**

Answer: _____

8. £1 000 earns 5% SIMPLE interest for 3 years. Work out the total interest. **[2 marks]**

Answer: _____

9. £1 000 earns 5% COMPOUND interest for 3 years. Work out the total interest, and say how much more it is than simple interest. **[4 marks]**

Answer: _____

10. After 2 years at 10% compound interest an account holds £2 420. Work out the original amount. **[3 marks]**

Answer: _____

11. A car is worth £7 225 after 2 years of 15% depreciation. Work out its original value. **[3 marks]**

Answer: _____

12. £5 000 grows to £5 832 in 2 years of compound interest. Work out the annual rate. **[4 marks]**

Answer: _____

13. An investment doubles in 2 years. Work out the annual compound rate, to 1 d.p. **[4 marks]**

Answer: _____

14. £1 000 is invested at 6% compound interest. Work out the first year the balance exceeds £1 200. **[4 marks]**

Answer: _____

15. A population of 8 000 falls by 10% a year. Work out the first year it drops below 6 000. **[4 marks]**

Answer: _____

16. A population of bacteria doubles every hour. It starts at 500. Work out the population after 5 hours. **[3 marks]**

Answer: _____

17. A radioactive sample has a half-life of 1 day. From 80 g, work out the mass left after 4 days. **[3 marks]**

Answer: _____ **g**

18. Explain why a 10% rise followed by a 10% fall does not return to the original amount. **[2 marks]**

Answer: _____

19. £4 000 is invested at 2.5% compound interest for 5 years.

(a) Work out the value after 5 years, to the nearest penny. **[3 marks]**

(b) Work out the total interest earned. **[2 marks]**

Answer: _____

20. A motorbike bought for £6 000 depreciates by 20% in year one, then 10% a year after that.

(a) Work out its value after 3 years. **[4 marks]**

(b) Work out the overall percentage loss. **[3 marks]**

Answer: _____

Free to print and use at home or in class. Please do not re-host or sell. Written by Hampstead Tuition Centre from the published exam specifications.