

Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

Repeated Percentage Changes

Calculator Allowed

INSTRUCTIONS TO CANDIDATES

- Write your name in the space provided.
- Write your answers in the spaces provided in this question paper.
- Answer ALL questions.
- Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
- You should have a ruler, compass and protractor where required.

Total Marks :

- 1) Jake buys 2 painting. The first is found to be an original and its value increases by 4% each year. The second is a fake and its value decreases by 23% each year. The original cost £40 000. The fake cost £11 000. Five years later is the total value of the paintings greater or less than he paid for them?

Answer _____ [3]

- 2) A house was bought for £275,000 in January 2018. It had increased in value by 4% by January 2019 and had gone up by a further 7% by January 2020. By what overall percentage did the value of the house increase between January 2018 and January 2020? Write your answer to 2 decimal places.

Answer _____ [3]

- 3) I invest £ 6000 in an account paying 4% compound interest per annum. After 4 complete years, the interest rate changes to 5%. From my initial investment, how many years would I have to wait before I have over £ 8000 in the account?

Answer _____ [3]

- 4) A private school charges £ 15000 a year. If a student stays from Year 11 to Year 12 they get a 20% discount on the fees. If they get a scholarship they get a 5% discount on the reduced fees. Show why they do not have a 25% discount on the original fees.

[3]

- 5) Maria has **£8000** to invest for **4 years**. Which of these bank accounts will give the best return on her investment?

Account 1	Will return amount invested plus 15% of the initial amount once the 4 year period is up.
Account 2	Pays 6.25% compound interest per annum.
Account 3	Pays 3% in the 1st year, 5% in the 2nd year, 7% in the 3rd year and 9% in the fourth year. This is compound interest per annum.

Answer _____ [4]

- 6) Juan invests £ 7000 in an account that pays 6% compound interest per annum. How much **interest** would he receive in total if he left the money in the account for 6 years?

Answer _____ [2]

- 7) A box of Pearl White washing powder is decreased in size.

- The height is decreased by 15%
- The length is decreased by 10%
- The width is decreased by 20%.

By what overall percentage will the volume be decreased?

Answer _____ [3]

- 8) Ahmad invests some money in a bank account paying 10% compound interest. After 2 years, the amount invested had increased to £4567. How much did he invest initially? Write your answer to 2 decimal places.

Answer _____ [3]

- 9) Chloe invest £7200 in a bank account paying a fixed rate of compound interest per annum. After 3 years her investment had grown to £8334.90. What rate of compound interest did she receive each year?

Answer _____ [3]

10) The table below shows the change in the value of Maths-Coin over the last three years.

Year	2016	2017	2018
Change in value	+50%	+35%	-50%

Note: the percentage change each year is based upon the value at the start of that year and the end of that year

Calculate the percentage change in Maths-Coin from the start of 2016 to end of 2018.

Answer _____ [4]

11) On the 1st March 1918 Jessie was born and £1000 was placed into a saving account. The saving account paid 9% compound interest, paid annually. The money and the interest were never touched and the amount was left to increase. Jessie died exactly 100 years later. Did she have at least one million pounds in her account when she died? Show how you obtained your answer. Based on your answer, at what age would she have at least one million pounds in her account.

Answer _____ [6]

13)

The price of softwood changes each year.
The price has increased by 6% per annum for each of the last **5 years**.
Before this, the price had decreased by 2% per annum.
Seven years ago the price of softwood was £34 per m³.

Calculate the current price of softwood.

[3]

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Current price of softwood is £ per m³