

Compound Interest, Growth and Decay

For Pearson Edexcel GCSE Mathematics (1MA1) • Higher tier

Name _____

Total marks: **26**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You may use a calculator.

- 1** £3400 is put into a savings account.
The account pays 2.5% compound interest per year.
Work out the amount in the account at the end of 6 years.

£
(2)

(Total for Question 1 is 2 marks)

- 2** Olu takes out a loan of £4500
Compound interest of 6.5% per annum is added to the loan at the end of each year.
Olu pays nothing back for 2 years.
Calculate the total amount of interest added to the loan in the 2 years.

£
(3)

(Total for Question 2 is 3 marks)

- 3** A farmer buys a new tractor for £64 000
 The value of the tractor falls by
 18% in the first year
 9% in each year after the first year.
 Work out the value of the tractor at the end of 4 years.
 Give your answer to the nearest pound.

£
 (3)

(Total for Question 3 is 3 marks)

- 4** The number of fish in a lake at the end of year n is F_n
 $F_{n+1} = 0.9 F_n$
 $F_0 = 5000$
 Work out the value of F_3

.....
 (2)

(Total for Question 4 is 2 marks)

- 5** The value of a machine decreases by 20% each year.
 After 3 years its value is £12 800
 Work out its original value.

£
 (3)

(Total for Question 5 is 3 marks)

- 6 There were 4000 deer in a nature reserve at the start of 2023
The number of deer increases by $x\%$ each year.
At the start of 2025 there were 4410 deer in the reserve.
Work out the value of x .

$$x = \dots\dots\dots$$

(3)

(Total for Question 6 is 3 marks)

- 7 Sam invests £4000 at 3.5% compound interest per year.
Tia invests £4000 at 4% simple interest per year.
Who has more money after 5 years? You must show your working.

$$\dots\dots\dots$$

(3)

(Total for Question 7 is 3 marks)

- 8 A house was bought for £240 000
In the first year its value increased by 5%.
In the second year its value decreased by $R\%$.
At the end of the second year the house was worth £239 400
Work out the value of R .

$$R = \dots\dots\dots$$

(3)

(Total for Question 8 is 3 marks)

- 9 Ezra opened a savings account with £2000 at the start of 2024
Interest of 3% is added to the account at the end of every year.
On 31 December 2024, straight after the interest was added, Ezra deposited £ P
On 31 December 2025, after the interest was added, the balance was £2636.80
Work out the value of P .
You must show all your working.

$$P = \dots\dots\dots (4)$$

(Total for Question 9 is 4 marks)
