Name: SOLUTIONS

GCSE (1 - 9)

Compound Interest (and simple interest)



Solutions by
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These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***Summer 2023*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The ***most current*** version of these worksheets will always be available at: kennethstafford.co.uk

Question	Where the question appeared
1	Edexcel, GCSE, Summer 2017, Paper 2F, Q22
2	Edexcel, GCSE, Autumn 2018, Paper 2F, Q23
3	Edexcel, GCSE, Summer 2019, Paper 3F, Q25
4	Edexcel, GCSE, Autumn 2018, Paper 2F, Q15
5	Edexcel, GCSE, Summer 2023, Paper 2F, Q27
6	Edexcel, GCSE, Summer 2023, Paper 3F, Q19
7	Edexcel, GCSE, November 2022, Paper 2F, Q23
8	Edexcel, GCSE, Summer 2022, Paper 2F, Q26

1

Anil wants to invest £25 000 for 3 years in a bank.

Personal Bank	Secure Bank
Compound Interest	Compound Interest
2% for each year	4.3% for the first year 0.9% for each extra year

Which bank will give Anil the most interest at the end of 3 years?
You must show all your working.

Personal Bank

$25{,}000 \times 1.02^3 = 26{,}530.20$

$26\,530.20 - 25{,}000$

$= £1530.20$

Secure Bank

$25{,}000 \times 1.043 \times 1.009^2$

$= 26546.46$

$26{,}546.46 - 25{,}000$

$= £1546.46$

Secure Bank

(Total for Question 22 is 3 marks)

[Edexcel, GCSE, Summer 2017, Paper 2F, Q22]

2

Northern Bank has two types of account.
Both accounts pay compound interest.

Cash savings account
Interest
2.5% per annum

Shares account
Interest
3.5% per annum

Ali invests £2000 in the cash savings account.
Ben invests £1600 in the shares account.

(a) Work out who will get the most interest by the end of 3 years.
You must show all your working.

Cash

$2000 \times 1.025^3 = £2153.78$

$- 2000 = £153.78$ interest

Shares

$1600 \times 1.035^3 = £1773.95$

$- 1600 = £173.95$ interest

Ben (Shares)

(4)

In the 3rd year the rate of interest for the shares account is changed to 4% per annum.

(b) Does this affect who will get the most interest by the end of 3 years?
Give a reason for your answer.

No. Still Ben. He will get even more interest.

(1)

(Total for Question 23 is 5 marks)

[Edexcel, GCSE, Autumn 2018, Paper 2F, Q23]

3

Katy invests £200 000 in a savings account for 4 years.
The account pays compound interest at a rate of 1.5% per annum.

Calculate the total amount of interest Katy will get at the end of 4 years.

$200{,}000 \times 1.015^4 = 212{,}272.71$

$-200{,}000 = £12{,}272.71$

£ 12,272.71

(Total for Question 25 is 3 marks)

[Edexcel, GCSE, Summer 2019, Paper 3F, Q25]

4

Remi invests £600 for 5 years in a savings account.
By the end of the 5 years he has received a total of £75 simple interest.

Work out the annual rate of simple interest.

£75 ÷ 5 = £15

$\frac{15}{600} = 0.025$ × 100 = 2.5

2.5 %

(Total for Question 15 is 3 marks)

[Edexcel, GCSE, Autumn 2018, Paper 2F, Q15]

4

Remi invests £600 for 5 years in a savings account.
By the end of the 5 years he has received a total of £75 simple interest.

Work out the annual rate of simple interest.

.....%

(Total for Question 15 is 3 marks)

[Edexcel, GCSE, Autumn 2018, Paper 2F, Q15]

5

Tamsin buys a house with a value of £150 000
The value of Tamsin's house increases by 4% each year.

Rachel buys a house with a value of £160 000
The value of Rachel's house increases by 1.5% each year.

At the end of 2 years, whose house has the greater value?
You must show how you get your answer.

100 + 4 = 104% = 1.04

100 + 1.5 = 101.5% = 1.015

Tamsin $150,000 \times 1.04^2 = £162,240$

Rachel $160,000 \times 1.015^2 = £164,836$

Rachel's house.

(Total for Question 27 is 4 marks)

[Edexcel, GCSE, Summer 2023, Paper 2F, Q27]

6

Jenny invests £3000 for 6 years at y% simple interest per year.

At the end of the 6 years, Jenny has received a total of £450 in interest.

Work out the value of y.

6 years = £450

1 year = 75

$y = \frac{75}{3000} = 0.025$

0.025×100

$y =$ 2.5%

(Total for Question 19 is 3 marks)

[Edexcel, GCSE, Summer 2023, Paper 3F, Q19]

7

Ella invests £7000 for 2 years in an account paying compound interest.

In the first year, the rate of interest is 3%
In the second year, the rate of interest is 1.5%

100 + 3 = 103% = 1·03
100 + 1·5 = 101·5% = 1·015

Work out the value of Ella's investment at the end of 2 years.

7000 x 1·03 x 1·015 = 7318·15

£ 7318·15

(Total for Question 23 is 3 marks)

[Edexcel, GCSE, November 2022, Paper 2F, Q23]

8

A new phone cost £679
The value of the phone decreases at a rate of 4% per year.

100 − 4 = 96% = 0·96

Work out the value of the phone at the end of 3 years.

679 x 0.96^3 = 600·7357

£ 600·74

(Total for Question 26 is 3 marks)

[Edexcel, GCSE, Summer 2022, Paper 2F, Q26]