

Compound Interest & Depreciation

Question Paper

Course	Edexcel IGCSE Maths
Section	1. Numbers & the Number System
Topic	Compound Interest & Depreciation
Difficulty	Hard

Time allowed: 60
Score: /44
Percentage: /100

Question 1

Viv wants to invest £2000 for 2 years in the same bank.

The International Bank

Compound Interest

4% for the first year
1% for each extra year

The Friendly Bank

Compound Interest

5% for the first year
0.5% for each extra year

At the end of 2 years, Viv wants to have as much money as possible.
Which bank should she invest her £2000 in?

[4 marks]

Question 2a

The population of a city increased by 5.2% for the year 2014

At the beginning of 2015 the population of the city was 1 560 000

Lin assumes that the population will continue to increase at a constant rate of 5.2% each year.

Use Lin's assumption to estimate the population of the city at the beginning of 2017

Give your answer correct to 3 significant figures.

[3 marks]

Question 2b

i)
Use Lin's assumption to work out the year in which the population of the city will reach 2000000

ii)
If Lin's assumption about the rate of increase of the population is too low, how might this affect your answer to (b)(i)?

[3 marks]

Question 3a

Katie invests £200 in a savings account for 2 years.

The account pays compound interest at an annual rate of

3.3% for the first year
1.5% for the second year

Work out the total amount of money in Katie's account at the end of 2 years.

[3 marks]

Question 3b

Katie travels to work by train.

The cost of her weekly train ticket increases by 12.5% to £225

Katie's weekly pay increases by 5% to £535.50

Compare the increase in the amount of money Katie has to pay for her weekly train ticket with the increase in her weekly pay.

[3 marks]

Question 4a

Ian invested an amount of money at 3% per annum compound interest.

At the end of 2 years the value of the investment was £2652.25

Work out the amount of money Ian invested.

[3 marks]

Question 4b

Noah has an amount of money to invest for five years.

Saver Account

4% per annum
compound interest.

Investment Account

21% interest paid at the
end of 5 years.

Noah wants to get the most interest possible.

Which account is best?

You must show how you got your answer.

[2 marks]

Question 5a

At the beginning of 2009, Mr Veale bought a company.

The value of the company was £50 000

Each year the value of the company increased by 2%.

Calculate the value of the company at the beginning of 2017

Give your answer correct to the nearest £100

[2 marks]

Question 5b

At the beginning of 2009 the value of a different company was £250 000
In 6 years the value of this company increased to £325 000

This is equivalent to an increase of $x\%$ each year.

Find the value of x .

Give your answer correct to 2 significant figures.

[3 marks]

Question 6

Max invests \$6000 in a savings account for 3 years.

The account pays compound interest at a rate of 1.5% per year for the first 2 years.

The compound interest rate changes for the third year.

At the end of 3 years, there is a total of \$6311.16 in the account.

Work out the compound interest rate for the third year.

Give your answer correct to 1 decimal place.

.....%

[3 marks]

Question 7

Jan invests \$ 8000 in a savings account.

The account pays compound interest at a rate of $x\%$ per year.

At the end of 6 years, there is a total of \$ 8877.62 in the account.

Work out the value of x .

Give your answer correct to 2 decimal places.

$x = \dots\dots\dots$

[3 marks]

Question 8

Mia wants to borrow £6000 and repay it, with interest, after two years.

She sees two offers for loans.

<p>Offer 1 Compound interest 3% per year</p>

<p>Offer 2 Compound interest First year 1% Second year 5%</p>
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Mia says,

“I will pay back the same amount because the average of 1% and 5% is 3%”

Is she correct?

You **must** show your working.

[3 marks]

Question 9

Mirek invests £6000 at a compound interest rate of 1.5% per year.

He wants to earn more than £1000 interest.

Work out the **least** time, in whole years, that this will take.

.....years

[3 marks]

Question 10a

Here are the interest rates for two accounts.

Account A
Interest: 3% per year compound interest.
No withdrawals until the end of three years.

Account B
Interest: 4% for the first year, 3% for the second year and 2% for the third year.
Withdrawals allowed at any time.

Derrick has £10000 he wants to invest.

Calculate which account would give him most money if he invests his money for 3 years.

Give the difference in the interest to the nearest penny.

Account by p

[5 marks]

Question 10b

Explain why he might **not** want to use Account A.

[1 mark]