

Name:.....

Total Marks:.....

# GCSE (9-1) Grade 4 Compound Interest and Depreciation



## Instructions

Use **black** ink or ball-point pen.

**Fill in the boxes** at the top of this page with your name.

Answer **all** questions.

Answer the questions in the spaces provided

– there may be more space than you need.

**Show all your working out**

## Information

The marks for **each** question are shown in brackets.

Use this as a guide as to how much time to spend on each question.

Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed

## Advice

Read each question carefully before you start to answer it

Attempt every question

Check your answers if you have time at the end

1. Toby invested £4500 for 2 years in a savings account.  
He was paid 4% per annum compound interest.

How much did Toby have in his savings account after 2 years?

£ .....

**(Total 3 marks)**

2. The value of a car depreciates by 35% each year.

At the end of 2007 the value of the car was £5460

Work out the value of the car at the end of 2006

£ .....

**(Total 3 marks)**

3. Mario invests £2000 for 3 years at 5% per annum **compound** interest.  
Calculate the value of the investment at the end of 3 years.

£.....

**(Total 3 marks)**

4. Derek invests £154 500 for 2 years at 4% per year compound interest.  
Work out the value of the investment at the end of 2 years.

£.....

**(3)**

**(Total 3 marks)**

5. Henry invests £4500 at a compound interest rate of 5% per annum.

At the end of  $n$  complete years the investment has grown to £5469.78.

Find the value of  $n$ .

.....

**(Total 2 marks)**

6. A company bought a van that had a value of £12 000  
Each year the value of the van depreciates by 25%.

Work out the value of the van at the end of three years.

£ .....

**(3)**

**(Total 3 marks)**

7. Bill invests £500 on 1st January 2004 at a compound interest rate of  $R\%$  per annum.  
The value, £ $V$ , of this investment after  $n$  years is given by the formula

$$V = 500 \times (1.045)^n$$

- (a) Write down the value of  $R$ .

$$R = \dots\dots\dots \quad (1)$$

- (b) Use your calculator to find the value of Bill's investment after 20 years.

$$\text{£} \dots\dots\dots \quad (2)$$

**(Total 3 marks)**

8. Gwen bought a new car.  
Each year, the value of her car depreciated by 9%.

Calculate the number of years after which the value of her car was 47% of its value when new.

.....  
**(Total 3 marks)**

9. Liam invests £6200 for 3 years in a savings account.  
He gets 2.5% per annum compound interest.

How much money will Liam have in his savings account at the end of 3 years?

£ .....

**(Total 3 marks)**

**10.** Toby invested £4500 for 2 years in a savings account.  
He was paid 4% per annum compound interest.

(a) How much did Toby have in his savings account after 2 years?

£ .....  
**(3)**

Jaspir invested £2400 for  $n$  years in a savings account.  
He was paid 7.5% per annum compound interest.

At the end of the  $n$  years he had £3445.51 in the savings account.

(b) Work out the value of  $n$ .

.....  
**(2)**

**(Total 5 marks)**

**\*11** Viv wants to invest £2000 for 2 years in the same bank.

<p><b>The International Bank</b></p> <p>Compound Interest</p> <p>4% for the first year</p> <p>1% for each extra year</p>
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<p><b>The Friendly Bank</b></p> <p>Compound Interest</p> <p>5% for the first year</p> <p>0.5% for each extra year</p>
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At the end of 2 years, Viv wants to have as much money as possible.

Which bank should she invest her £2000 in?

**(Total 4 marks)**