

$$100\% + 4\% = 104\%$$

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?

$$4500 \times 1.04^2$$

£4867.20
(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

$$100\% - 35\% = 65\%$$

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

$$5460 \div 0.65 = 8400$$

£
(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.

$$2000 \times 1.05^3$$

$$\text{£} \dots 2315.25 \dots$$

(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.

$$154500 \times 1.04^2$$

$$\text{£} \dots 167107.20 \dots$$

(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 .

$$4500 \times 1.05^3 = 5209.31$$

$$4500 \times 1.05^4 = 5469.78$$

.....4.....
(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.

$$12000 \times 0.75^3 = 5062.50$$

£ 5062.50
.....
(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 .

$$R = \dots\dots\dots 4.5 \dots\dots\dots \quad (1)$$

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

$$\begin{aligned} 500 \times 1.045^{20} \\ = 1205.86 \end{aligned}$$

$$\begin{aligned} \text{£} \dots\dots\dots 1205.86 \dots\dots\dots \\ (2) \\ \text{(Total 3 marks)} \end{aligned}$$

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.

$$\begin{aligned}
 & \cancel{1.09} \\
 & 0.91^3 = 0.753571 \\
 & 0.91^4 = 0.68574961 \\
 & 0.91^5 = 0.6240321451 \\
 & 0.91^6 = 0.567869252 \\
 & 0.91^7 = 0.5167610194 \\
 & 0.91^8 = 0.47025
 \end{aligned}$$

8

(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?

$$\begin{aligned}
 & 6200 \times 1.025^3 \\
 & = 6676.72
 \end{aligned}$$

£6676.72.....

(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?

$$\text{£ } \frac{4867.20}{(3)}$$

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 .

$$2400 \times 1.075^4 = 3205.13$$
$$2400 \times 1.075^5 = 3445.51$$

$$\frac{5}{(2)}$$

(Total 5 marks)

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

<p>The International Bank</p> <p>Compound Interest</p> <p>4% for the first year 1% for each extra year</p>

<p>The Friendly Bank</p> <p>Compound Interest</p> <p>5% for the first year 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?

$$2000 \times 1.04 \times 1.01$$

$$= £2100.80$$

$$2000 \times 1.05 \times 1.005$$

$$= £2110.5$$

Viv should invest her money in The Friendly Bank.

(Total 4 marks)