

1 Jack bought a new boat for £12 500

The value, £ $V$ , of Jack's boat at the end of  $n$  years is given by the formula

$$V = 12\,500 \times (0.85)^n$$

- (a) At the end of how many years was the value of Jack's boat first less than 50% of the value of the boat when it was new?

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(2)

A savings account pays interest at a rate of  $R\%$  per year.

Jack invests £5500 in the account for one year.

At the end of the year, Jack pays tax on the interest at a rate of 40%.

After paying tax, he gets £79.20

- (b) Work out the value of  $R$ .

.....  
(3)

(Total for Question 1 is 5 marks)

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

**Personal Bank**

Compound Interest

2% for each year

**Secure Bank**

Compound Interest

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.

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**(Total for Question 2 is 3 marks)**

- 3 Naoby invests £6000 for 5 years.  
The investment gets compound interest of  $x\%$  per annum.  
At the end of 5 years the investment is worth £8029.35  
Work out the value of  $x$ .

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**(Total for Question 3 is 3 marks)**

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- 4 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.

£.....

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**(Total for Question 4 is 3 marks)**

- 5 Louise invests  $\pounds x$  in Better Investments for 3 years.  
Sadiq invests  $\pounds x$  in County Bank for 3 years.

<p><b>Better Investments</b></p> <p>Compound Interest</p> <p>2.5% per annum</p>
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<p><b>County Bank</b></p> <p>Compound Interest</p> <p>2% per annum for the first two years 3.5% per annum for each extra year</p>
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At the end of the 3 years, the value of Louise's investment is  $\pounds 344\,605$

Work out the value of Sadiq's investment at the end of the 3 years.

£.....

**(Total for Question 5 is 4 marks)**

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

<p><b>Cash savings account</b> Interest 2.5% per annum</p>
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<p><b>Shares account</b> Interest 3.5% per annum</p>
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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.

(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.

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.....  
(1)

**(Total for Question 6 is 5 marks)**

7 Sakira invested £3550 in a savings account for 3 years.

She was paid 2.6% per annum compound interest for each of the first 2 years.  
She was paid  $R\%$  interest for the third year.

Sakira had £3819.21 in her savings account at the end of the 3 years.

Work out the value of  $R$ .

Give your answer correct to 1 decimal place.

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**(Total for Question 7 is 3 marks)**

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8 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%

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

£.....

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**(Total for Question 8 is 3 marks)**



- 9 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%.

- (a) Calculate the value of the company at the beginning of 2017  
Give your answer correct to the nearest £100

£.....  
(2)

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.

- (b) Find the value of  $x$ .  
Give your answer correct to 2 significant figures.

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(3)

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(Total for Question 9 is 5 marks)