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

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

Decreases at 4% per year,
so multiply by $1 - 0.04 = 0.96$
every year.

cost after 3 years: 679×0.96^3 (2)

$= 600.735...$

$= £600.74$ (1)

£ 600.74

(Total for Question 1 is 3 marks)

2 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.

Start of first year = £ 7000

End of first year = £ 7000 + $\frac{3}{100}$ × 7000

7000 + 210 = 7210 (1)

Start of second year = £ 7210

End of second year = £ 7210 + $\frac{1.5}{100}$ × 7210

7210 + 108.15 (1)

= 7318.15 (1)

£ 7318.15

(Total for Question 2 is 3 marks)

3 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.

$\frac{100\% + 4\%}{100} = 1.04$

$\frac{100\% + 1.5\%}{100} = 1.015$

Tamsin's house by the end of 2 years = $150\,000 \times 1.04^2$ (1) (2) → number of years

$= 162240$ (1)

(1)

Rachel's house by the end of 2 years = $160\,000 \times 1.015^2$

$= 164836$ (1)

Rachel's house has a greater value

(Total for Question 3 is 4 marks)