Simple and Compound Interest **Answers**

1. In each case, the interest offered is simple interest. Calculate the interest earned after the given number of years.

   a. £3000 at a rate of 5% for 3 years.

   0.05 × 3000 = £150

   150 × 3 = £450

   b. £440 at a rate of 20% for 2 years.

   0.2 × 440 = £88

   88 × 2 = £176

   c. £950 at a rate of 2% for 4 years.

   0.02 × 950 = £19

   19 × 4 = £76

2. Alexa borrows £1650 from the bank. The bank charges her 4.5% simple interest per annum. Work out the total amount that Alexa will need to pay back to the bank after 3 years. Assume that Alexa does not pay any money back before this point.

   0.045 × 1650 = £74.25

   74.25 × 3 = £222.75

   1650 + 222.75 = £1872.75

3. In each case, the interest on the loan specified is compound interest. Calculate the amount owed after the given number of years. Assume that none is paid back.

   a. £2000 at a rate of 5% per annum for 2 years.

   $2000 \times 1.05^2 = £2205$

   b. £650 at a rate of 20% per annum for 3 years.

   $650 \times 1.2^3 = £1123.20$

   c. £8400 at a rate of 2% per annum for 4 years.

   $8400 \times 1.02^4 =$

   £9092.43 (to 2d.p.)

4. Caleb borrows £1800 from the bank. The bank charges him compound interest at a rate of 1.5% per annum. How much interest will Caleb owe after 3 years? Assume that he makes no payments before that point.

   $1800 \times 1.015^3 = £1882.22$ (to 2d.p.)

   1882.22 – 1800 = £82.22

5. A car costs £12 000 and depreciates in value at a rate of 2% per annum. What is the car worth after 5 years?

   $12\,000 \times 0.98^5 = £10\,847.05$ (to 2d.p.)

6. Harry invests £2000 in a bank account that pays 2.4% compound interest annually. After how many years will Harry have over £2250 in the bank, assuming that he does not withdraw any money?

$2000 \times 1.024^2 = £2097.15$

$2000 \times 1.024^3 = £2147.48$

$2000 \times 1.024^4 = £2199.02$

$2000 \times 1.024^5 = £2251.80$

5 years

7. Pal wants to invest £400 in a bank account for 3 years. Which bank account should she choose? Explain your answer.

Account A	**Account B**
3% simple interest per annum	2.5% compound interest per annum

Account A:

$0.03 \times 400 = £12$

$12 \times 3 = £36$

$400 + 36 = £436$

Account B:

$400 \times 1.025^3 = £430.76$

Pal should choose bank account A.