



QT Growth & Decay

1. George invested £3200 in a savings account for 3 years. He was paid compound interest at a rate of 3.5% per annum. Work out how much was in the account after 3 years?

$$\begin{aligned} \text{Total} &= \text{Original} \times \text{multiplier}^n \\ &= 3200 \times 1.035^3 \\ &= 3547.5972 \end{aligned}$$

103.5%

£3547.90

2. Tony invested £4500 for 3 years. He was paid 4% per annum compound interest. Calculate the **total amount of interest** Tony will get after 3 years.

$$\begin{aligned} \text{Total} &= \text{Original} \times \text{multiplier}^n \\ &= 4500 \times 1.04^3 \\ &= 5061.89 \\ \text{Interest} &= \underline{\underline{£561.89}} \end{aligned}$$

104%

3. Jayden invested £2400 for n years in a savings account. He was paid 7.5% per annum compound interest. At the end of n years he had £3445.51 in the savings account. Work out the value of n .

$$\begin{aligned} \text{Total} &= \text{Original} \times \text{multiplier}^n \\ 3445.51 &= 2400 \times 1.075^n \\ 3 \text{ years} &= 2971.51 \\ 4 \text{ years} &= 3205.13 \end{aligned}$$

107.5%

$$\underline{\underline{5 \text{ years} = 3445.51}}$$

4. Daljit bought a new campervan that had a value of £36,000. Each year the value of the campervan will depreciate by 22%. Work out the value of the campervan after 4 years.

$$\begin{aligned} \text{Total} &= \text{Original} \times \text{multiplier}^n \\ &= 36000 \times 0.78^4 \\ &= 13325.42 \end{aligned}$$

78%

78%

£13325.42



5. Josh bought a new car for £16500.

In the first year the value of the car depreciates by 25%. (75%)

In the second year and the third year the car depreciates by 12% (88%)

Work out the value of the car after three years.

1st year $16500 \times 0.75 = 12375$

2nd / 3rd years Total = Original \times multiplierⁿ
= 12375×0.88^2
= ~~9535~~ £9583.20

6. Carys is going to invest some money for 5 years.

£10,000

She can choose from two options:

Brilliant Bank
2.6% per annum (1.026%)
compound interest

Super Duper Bank
2.7% per annum (0.027)
simple interest

Which investment should Carys choose?

You must show your working.

Brilliant Bank

Total = Original \times multiplierⁿ
= $10,000 \times 1.026^5$
= 11369.38

Interest $11369.38 -$
 $10,000.00$
£1369.38

Super Duper Bank

$10,000 \times 0.027 = 270$

After 5 years

$270 \times 5 = 1350$

£1350

Brilliant Bank