Guide to:
Compound interest

maths Links

Explanation:

Compound interest (and **depreciation**) applies a percentage change to the new balance at the end of each year. Use the multiplier formula: **Final Amount = Original × (Multiplier)^{n}**, where ***n*** is the number of years.

For a compound **increase** of r%, the multiplier is **1 +** $\frac{r}{100}$ (e.g. +3.5% → **1.035**). For **depreciation** (decrease) of r%, the multiplier is **1 −** $\frac{r}{100}$ (e.g. −12% → **0.88**). Watch out if the question asks for the **interest earned only** (subtract the original amount at the end).

Example 1: £4000 is invested for **3 years** at **2.5% per annum** compound interest. Find the total value after 3 years.

Solution:

Multiplier = 100% + 2.5% = 102.5% = **1.025**
Amount = 4000×1.025^3
= 4307.5625 (round to nearest penny)
Answer: £4307.56

Example 2: A car bought for **£15,000** depreciates by **18% per year**. Work out its value after **4 years** (to the nearest £).

Solution:

Multiplier = 100% − 18% = 82% = **0.82**
Value = $15{,}000 \times 0.82^4 = 6781.824$
Answer: £6782

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