

Compound Interest - Problem Solving

ANSWERS



Compound Interest

$$A = P(1 + r)^n$$

Where: A = the final amount
 P = the original investment
 r = the % rate (in decimal form)
 n = the number of times the interest is applied

Here is the formula used to calculate compound interest:

Section A Finding the Time Period

- 1) £1,000 is invested in a savings account that gives 3% compound interest per annum. After x years, there is £1,159.27 in the account.

Calculate the value of x , the number of years that the money has been in the account for.

5 years

- 2) £1,000 is invested in a savings account that gives 2.4% compound interest per annum.

After x years, there is £1,208.93 in the account. Calculate the value of x , the number of years that the money has been in the account for.

8 years

- 3) £3,600 is invested in a savings account that gives 2.4% compound interest per annum.

After x years, there is £3,865.47 in the account. Calculate the value of x , the number of years that the money has been in the account for.

3 years

- 4) £2,300 is invested in a savings account that gives 4% compound interest for the first year and 0.8% per annum for each year after that.

After x years, there is £2,469.47 in the account. Calculate the value of x , the number of years that the money has been in the account for.

5 years

Section B Finding the Initial Investment

- 1) Some money is invested for 3 years in a savings account. The account earns 3% per annum compound interest.

After 3 years, there is £1,365.91 in the bank account. Calculate the how much was invested.

£1,250

- 2) Some money is invested for 3 years in a savings account. The account earns 3.5% per annum compound interest.

After 3 years, there is £2,993.54 in the bank account. Calculate the how much was invested.

£2,700

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- 3) Some money is invested for 7 years in a savings account. The account earns 3.5% per annum compound interest.

After 7 years, there is £3,142.53 in the bank account. Calculate the how much was invested.

£2,470

- 4) Some money is invested for 5 years in a savings account. The account earns 2.1% compound interest in the first year and 1.2% per annum compound interest for each year after that.

After 5 years, there is £6,029.15 in the bank account. Calculate the how much was invested.

£5,630

Section C *Finding the Percentage Interest*

- 1) £1,000 is invested in a savings account that gives $x\%$ compound interest per annum. After 2 years, there is £1,081.60 in the account.

Calculate the value of x , the value of the interest in %.

4%

- 2) £3,000 is invested in a savings account that gives $x\%$ compound interest per annum. After 2 years, there is £3,090.68 in the account.

Calculate the value of x , the value of the interest in %.

1.5%

- 3) £14,500 is invested in a savings account that gives $x\%$ compound interest per annum. After 3 years, there is £15,478.21 in the account.

Calculate the value of x , the value of the interest in %.

2.2%

- 4) £7,240 is invested in a savings account that gives 3.2% compound interest for the first year and $x\%$ compound interest per annum each of the following years.

After 6 years, there is £7,814.01 in the account. Calculate the value of x , the value of the interest in %.

0.9%