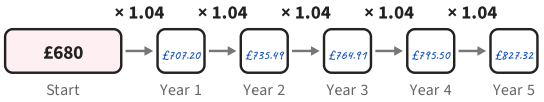
Compound Interest

ANSWERS

1

£680 is invested. It grows by 4% each year. Work out its value after 5 years, to the nearest penny.



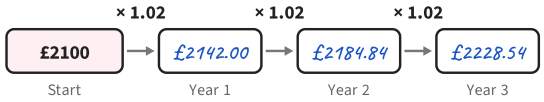
Multiplier: 100% + 4% = 104% = 1.04

Value: £680 × 1.04^5

Answer £827.32

2

£2100 is saved in an account. It grows by 2% each year. Work out its value after 3 years, to the nearest penny.



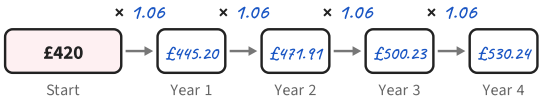
Multiplier: 100% + 2% = 102% = 1.02

Value: £2100 × 1.02^3

Answer £2228.54

3

£420 is invested. It grows by 6% each year. Work out its value after 4 years, to the nearest penny.



Multiplier: 100% + 6% = 106% = 1.06

Value: £420 × 1.06^4

Answer £530.24

4

£9200 is put in a savings account. It grows by 3.5% each year. Work out its value after 2 years, to the nearest penny.

Multiplier: 100% + 3.5% = 103.5% = 1.035

Value: £9200 × 1.035^2

Answer £9855.27

5

A motorbike is worth £7200. It falls by 15% each year. Work out its value after 3 years, to the nearest penny.

Multiplier: 100% − 15% = 85% = 0.85

Value: £7200 × 0.85^3

Answer £4421.70

6

Sam works out £800 after 3 years at 6% compound interest as £800 × 1.6^3 = £3276.80.
Explain his mistake, then find the right value to the nearest penny.

1.6 is 160%, a 60% increase

6% means 106% = 1.06

£800 × 1.06^3

Answer £952.81

7

£1500 is invested for 4 years at 3% a year. How much more is it worth with compound interest than with simple interest?

compound: £1500 × 1.03^4 = £1688.26

simple: £1500 + 4 × £45 = £1680.00

£1688.26 − £1680.00

Answer £8.26

8

Leo invests £2400 at 1.8% compound interest per year. How much interest has he earned after 6 years? Give your answer to the nearest penny.

£2400 × 1.018^6 = £2671.15

£2671.15 − £2400

Answer £271.15

Compound Interest *further practice*

ANSWERS

9

£5600 is invested at 2.25% compound interest per year. Work out its value after 3 years, to the nearest penny.

$100\% + 2.25\% = 102.25\% = 1.0225$

$£5600 \times 1.0225^3$

Answer £5986.57

10

A laptop costs £1250. It loses 22% of its value each year. What is it worth after 3 years?

$100\% - 22\% = 78\% = 0.78$

$£1250 \times 0.78^3$

Answer £593.19

11

Write the multiplier for each change.
a) an increase of 7%
b) a decrease of 7%
c) an increase of 0.5%
d) a decrease of 30%

a) 1.07

b) 0.93

c) 1.005

d) 0.7

12

A town has a population of 18 400. It grows by 1.5% each year. Work out the population after 4 years, to the nearest whole number.

$18\,400 \times 1.015^4$

$= 19\,529.089...$

Answer 19 529

13

Account A pays 4% compound interest per year. Account B pays 4.5% simple interest per year. Mia puts £2000 in one account for 3 years. Which account gives her more, and by how much?

A: $£2000 \times 1.04^3 = £2249.73$

B: $£2000 + 3 \times £90 = £2270.00$

Answer B, by £20.27

14

£3200 is invested at 5% compound interest per year. After how many whole years will it first be worth more than £4000?

after 4 years: £3889.62

after 5 years: £4084.10

Answer 5 years

15

A painting is worth £7500. Its value rises by 6% a year for 2 years, then falls by 10% a year for the next 3 years. Work out its value at the end.

$£7500 \times 1.06^2 = £8427.00$

$£8427.00 \times 0.9^3$

Answer £6143.28

16

Amir says, "Losing 10% a year for 2 years is the same as losing 20%." Is Amir right? Explain, using £100.

$£100 \times 0.9^2 = £81$

that is a 19% loss, not 20%

Answer No, £81 is a 19% loss