1 Harold bought an antique clock for £1200
The clock increased in value by 8% per year.

Find the value of the clock exactly 3 years after Harold bought the clock.
Give your answer correct to the nearest £.

increase by 8% = 100% + 8% = 108%
↑
original value

$1200 \times 1.08 \times 1.08 \times 1.08 = 1511.6544$ (2)
↑ year 1 ↑ year 2 ↑ year 3
$= 1512$ ← .6 > .5 so round up

£ 1512 (1)

(Total for Question 1 is 3 marks)

2 Himari's annual salary is 3 130 000 Japanese Yen (JPY).
She gets a salary increase of 4%

(a) Work out Himari's salary after this increase.

$3\,130\,000 + \frac{4}{100} \times 3\,130\,000$ (1)

$= 3\,130\,000 + 125\,200$ (1)

$= 3255\,200$ (1)

3 255 200 JPY

(3)

Kaito bought a car.
The value of the car when Kaito bought it was 750 000 JPY.
At the end of each year, the value of his car had depreciated by 15%

(b) Work out the value of Kaito's car at the end of 3 years.
Give your answer correct to the nearest JPY.

Initial value : 750 000 JPY

End of year 1 : $\frac{85}{100} \times 750\,000$ JPY $= 637\,500$ JPY (1)

End of year 2 : $\frac{85}{100} \times 637\,500$ JPY $= 541\,875$ JPY (1)

End of year 3 : $\frac{85}{100} \times 541\,875$ JPY $= 460\,594$ JPY (1)

460 594 JPY

(3)

(Total for Question 2 is 6 marks)

3 Hamish buys a new car for $20 000
The car depreciates in value by 19% each year.

Work out the value of the car at the end of 3 years.
Give your answer to the nearest $.

Value of the car each year : 100% - 19%

: 81% (from the value at the start of each year) (1)

Value of the car at the end of year 3 : $20\,000 \times \left(\frac{81}{100}\right)^3$ (1)

: 10 629 (1)

$ 10 629

(Total for Question 3 is 3 marks)

Zhi bought a house on 1st January 2017
When she bought the house, its value was 120 000 yuan.

The value of the house increased by 1.8% per year.

4 (b) Work out the value of Zhi's house on 1st January 2020
Give your answer correct to 3 significant figures.

2017 to 2020 : 3 years

Value of house each year : 100% + 1.8%
: 101.8% (1)

120 000 × (101.8%)^3 (1) : 126597.34
: 127 000 (3 s.f.) (1)

127 000 ..... yuan
(3)

(Total for Question 4 is 3 marks)

5 Kuro invests 50 000 yen for 3 years in a savings account.
She gets 2.4% per year compound interest.

Work out how much money Kuro will have in her savings account at the end of the 3 years.
Give your answer correct to the nearest yen.

$100\% + 2.4\% = 102.4\%$

$= 50\,000 \times (102.4\%)^3$ ← compounded for 3 years (2)

$= 53\,687$ (1)

53 687 ..... yen

(Total for Question 5 is 3 marks)

6 Chen invests 40 000 yuan in a fixed-term bond for 3 years.

The fixed-term bond pays compound interest at a rate of 3.5% each year.

(a) Work out the value of Chen's investment at the end of 3 years.
Give your answer to the nearest yuan.

$100\% + 3.5\% = 103.5\%$

$103.5\% \div 100 = 1.035$ (convert to decimal)

$40000 \times 1.035^3 = 44348.715$ (2)

≈ 44349 yuan (1)

44349 ..... yuan

(3)

(Total for Question 6 is 3 marks)

7 Jane bought a new car for $18 000
The car depreciates in value by 15% each year.

Work out the value of the car at the end of 4 years.
Give your answer correct to the nearest $

Value each year : (100% − 15%) of value

= 85%

Value at the end of 4 years : $18\,000 \times \left(\frac{85}{100}\right)^4$ (2)

= 9396 (1)

$ 9396

(Total for Question 7 is 3 marks)

8 Asha bought an apartment.

The table gives information about the value of apartments, in euros, and the annual service charge band.

Value (x euros)	Service charge band
$x \geqslant 700\,000$	A
$600\,000 \leqslant x < 700\,000$	B
$500\,000 \leqslant x < 600\,000$	C
$400\,000 \leqslant x < 500\,000$	D
$0 < x < 400\,000$	E

In 2021, the value of Asha's apartment was 634 400 euros.

The value of Asha's apartment had increased by 4% from its value in 2020

(a) Has the annual service charge band changed for Asha's apartment?
Show your working clearly.

$1 + 0.04 = 1.04$ (1)

$\frac{634\,400}{1.04} \times 100\% = 610\,000$ (1)

No. Annual service charge has not changed. (1)

(3)

Pam bought a boat.

In each year after Pam bought the boat, the value of the boat depreciated by 15%

(b) Work out the total percentage by which the value of the boat had depreciated by the end of the second year after Pam bought the boat.

$100 - 15 = 85\%$

$0.85 \times 0.85 = 0.7225$ (1)

$1 - 0.7225 = 0.2775 \times 100\%$ (1)

$= 27.75\%$ (1)

27.75 ..... %

(3)

(Total for Question 8 is 6 marks)

9 Pasha invests 50 000 dollars in a savings account for 4 years.
He gets 1.3% per year compound interest.

Work out how much money Pasha will have in his savings account at the end of 4 years.
Give your answer correct to the nearest dollar.

50 000 × 1·013 = 50 650 (1)

50 650 × 1·013 = 51 308.45

51 308.45 × 1·013 = 51 975.45 (1)

51 975.45 × 1·013 = 52 651 (1)

52 651 ..... dollars

(Total for Question 9 is 3 marks)

10 Shane invests 7200 dollars for 3 years in a savings account.
He gets 2.5% per year compound interest.

How much money will Shane have in his savings account at the end of 3 years?
Give your answer to the nearest dollar.

$7200 \times (1.025)^3 = 7754$

(2) (1)

7754 ..... dollars

(Total for Question 10 is 3 marks)

11 Teresa invests \$2000 for 3 years in a savings account.
She gets 4% each year compound interest.

(a) How much money will Teresa have in her savings account at the end of 3 years?
Give your answer correct to the nearest dollar.

$2000 \times 1.04^3 = 2250$ (2) (1)

\$ 2250

(3)

Sam invested \$$T$
The value of his investment decreased by 9% each year.

At the end of the first year, the value of Sam's investment was \$1365

(b) Work out the value of T

$T \times 0.91 = 1365$

$T = \frac{1365}{0.91}$ (2)

$= 1500$ (1)

1500

(3)

(Total for Question 11 is 6 marks)

12 Matteo is going to invest 5000 Swiss francs for two years.

He can invest his money in Bank **G** or in Bank **H**.

Bank **G**	Bank **H**
1.6% per year compound interest	2.9% interest added after two years

The total amount of interest Matteo would receive at the end of two years from Bank **G** is more than the amount of interest Matteo would receive at the end of two years from Bank **H**.

How much more?

H: $\frac{2.9}{100} \times 5000 = 145$ (1)

G: $\frac{1.6}{100} \times 5000 = 80$

$\frac{1.6}{100} \times 5080 = 81.28$ (1)

$80 + 81.28 = 161.28$

$161.28 - 145 = 16.28$ (1)

(1)

16.28

..... Swiss francs

(Total for Question 12 is 4 marks)

13 Kazi buys a car for 700 000 taka.
The value of the car depreciates by 12% each year.

Work out the value of the car at the end of 3 years.
Give your answer correct to the nearest taka.

value depreciation each year = $1 - 0.12 = 0.88$

after 3 years = $700\,000 \times 0.88^3$ (2)

$= 477\,030$ (1)

477 030 ..... taka

(Total for Question 13 is 3 marks)

14 Charlotte buys a painting for $680
The value of the painting increases by 4% each year.

Work out the value of the painting at the end of 3 years.
Give your answer correct to the nearest $

$680 \times 1.04^3 = 764.91$ (2)

≈ 765 (1)

$ 765

(Total for Question 14 is 3 marks)