THIRD SPACE LEARNING

GCSE Exam Questions

Compound Interest | Number

GCSE Exam Questions: Compound Interest

1) Investment A: Save £200 per month for 2 years. 3.7% interest added to the total amount saved.

Investment B: Invest £4200
Compound interest of 9% per year.

After 2 years, how much more is investment B than A?

(4 marks)

2) **(a)** David buys a second hand car for £8000.
The car depreciates in value by 12% per year, compound interest.
Which calculation works out the total value of the car after 5 years?

$8000 \times 12 \times 5$ $8000 \times 0.88 \times 5$
8000×1.12^5 8000×0.88^5

(1)

(b) After 5 years, he sells the car for £4500.
How much profit does David make compared to the expected value of the car at this time?

(1)

(2 marks)

3) **(a)** The population of flamingos in a lake is 2300.
The population grows by 3.2% per year.
What is the population after 5 years?

(2)

(b) How many years will it be before the population surpasses 3200?

(2)

(4 marks)

GCSE Exam Questions: Compound Interest

4) **(a)** On the 6th April 2018, Reuben invested some money in a bank account. The bank pays 1.6% compound interest per year.

On the 6th April 2019, Reuben withdrew £300 from the account.
On the 6th April 2020, Reuben had £727.46 in the account.

How much money did Reuben originally invest in the account?

(4)

(b) If Reuben left the account to gain interest for a further 3 years, how much money would Reuben expect to have invested if the interest rate does not change?

(2)

(6 marks)

GCSE Exam Questions: Compound Interest Answers

	Question	Answer	Marks
1)	Investment A: Save £200 per month for 2 years. 3.7% interest added to the total amount saved. Investment B: Invest £4200 Compound interest of 9% per year. After 2 years, how much more is investment B than A?	Investment A: $200 \times 24 \times 1.037$ or £4977.60 4200×1.09^2 £4990.02 4990.02 - 4977.42 = £12.42	**(1)** **(1)** **(1)** **(1)**
2) (a)	David buys a second hand car for £8000. The car depreciates in value by 12% per year, compound interest. Which calculation works out the total value of the car after 5 years? $8000 \times 12 \times 5$ $8000 \times 0.88 \times 5$ 8000×1.12^5 8000×0.88^5	8000×0.88^5	**(1)**
2) (b)	After 5 years, he sells the car for £4500. How much profit does David make compared to the expected value of the car at this time?	£278.14	**(1)**
3) (a)	The population of flamingos in a lake is 2300. The population grows by 3.2% per year. What is the population after 5 years?	$2300 \ (1 + \frac{3.2}{100})^5$ 2692	**(1)** **(1)**
3) (b)	How many years will it be before the population surpasses 3200?	2300×1.032^{11} *oe* 11 years	**(1)** **(1)**
4) (a)	On the 6th April 2018, Reuben invested some money in a bank account. The bank pays 1.6% compound interest per year. On the 6th April 2019, Reuben withdrew £300 from the account. On the 6th April 2020, Reuben had £727.46 in the account. How much money did Reuben originally invest in the account?	$727.46 \div 1.016$ = 716.003937 716 + 300 = 1016.003937 $1016.003937 \div 1.016$ = 1000.003875 = £1000	 **(1)** **(1)** **(1)** **(1)**
4) (b)	If Reuben left the account to gain interest for a further 3 years, how much money would Reuben expect to have invested if the interest rate does not change?	727.46×1.016^3 762.939749 £762.94	**(1)** **(1)**

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