Fractions, Decimals and Percentages – 2022 GCSE Mathematics Higher

1. June/2022/Paper_J560/04/No.3

In January 2018, an art collector bought an antique painting.
In January 2020, he sold it for £17 640.

Assume the value of the painting increased by 5% each year.

Calculate the art collector's profit.
You must show your working.

£ ..... **[5]**

2. June/2022/Paper_J560/04/No.16

Li bought a house at the start of 2016.
Li assumes the value of the house, £V, can be predicted using the formula

$V = 185000 \times 1.035^n$

where n is the number of years after the start of 2016.

(a) Explain how you know that the value of the house is predicted to increase each year.

.....

..... **[1]**

(b) Write down the percentage increase per year that is used in the formula.

(b) ..... % **[1]**

(c) Write down the value of the house at the start of 2016.

(c) £ ..... **[1]**

(d) Calculate the predicted value of the house at the start of 2020, giving your answer correct to **4** significant figures.

(d) £ ..... **[2]**

(e) **(i)** Compared with its value at the start of 2016, show that the formula predicts the house will have doubled in value at some point during 2036. **[3]**

(ii) Give **one** reason why this may not happen.

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..... **[1]**

3. June/2022/Paper_J560/05/No.16

Work out $0.\dot{6} \times 0.\dot{5}\dot{4}$ giving your answer as a fraction in its simplest form.
You must show your working.

..... **[5]**

4. June/2022/Paper_J560/06/No.8

1600 fish are released into a new lake which has no fish.
The number of fish is expected to increase by 5% each year.

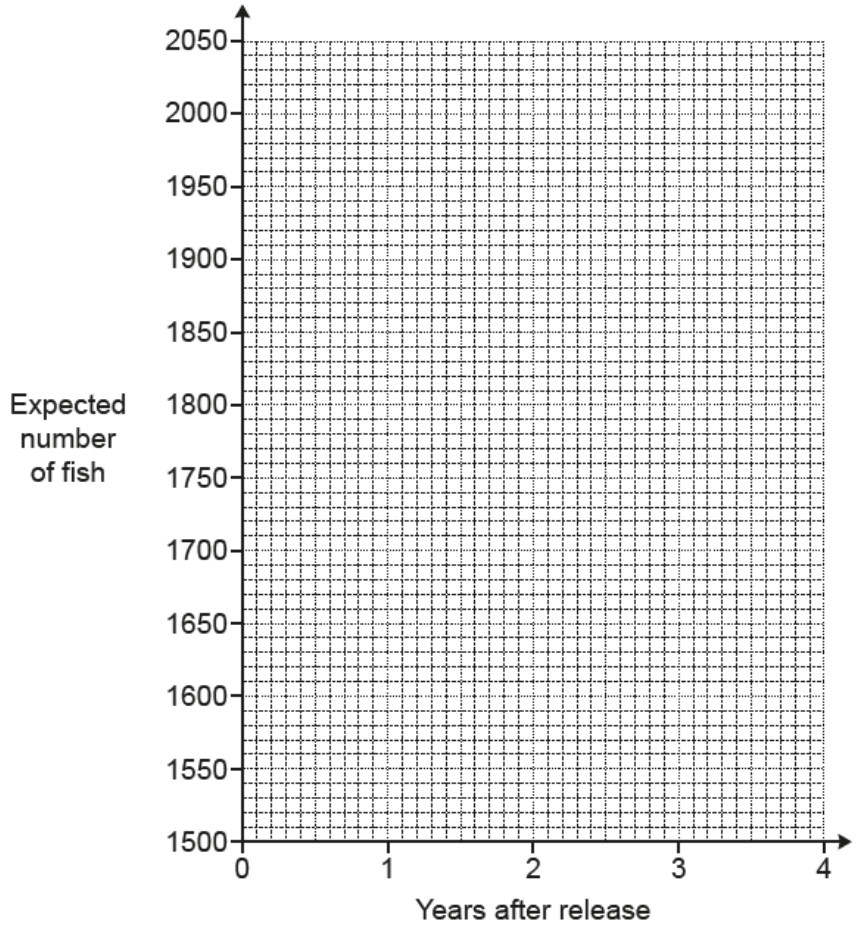
(a) The table shows the expected number of fish in the lake at the end of 1 year and at the end of 2 years.

Complete the table.
Round your answers to the nearest integer.

Years after release	0	1	2	3	4
Expected number of fish	1600	1680	1764		

[3]

(b) Use the table to draw a suitable graph to show the expected number of fish in the lake.



[3]

(c) A maximum of 2000 fish can live in the lake.

What effect would you expect this to have on the shape of your graph after 4 years?

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..... **[2]**

5. June/2022/Paper_J560/06/No.9

A garage is trying to sell a car.
The price of the car is normally £18 000.
In a sale, the price of the car is reduced by 30%.
As a special offer, the sale price is then reduced by r%.
The special offer price is £9450.

Find the value of r.
You must show your working.

$r =$ ..... **[5]**