OCR GCSE Mathematics Non-Calculator 2022 Higher Paper 3 Revision Worksheet

Question 6

The mass of a stone is 680 g. The density of the stone is 1.6 g/cm^3.

(a) Work out the volume of the stone.

(b) Write 1.6 g/cm^3 in kg/m^3.

Question 7

(a) Multiply out and simplify: $(x - 4)(x + 5)$

(b) Factorise: $x^2 - 25$

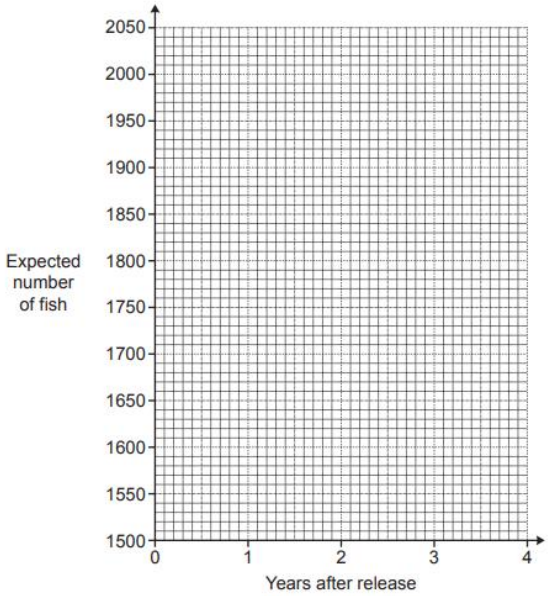
Question 8

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	1600	1680	1764		

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



(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?

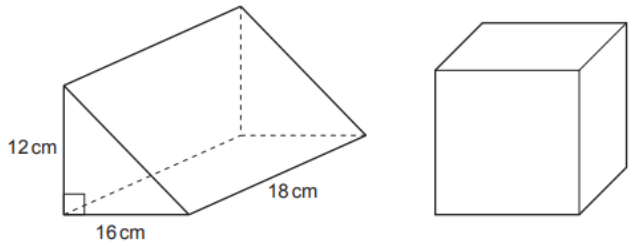
Question 9

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.**

Question 10

The diagram shows a triangular prism and a cube. The ends of the prism are right-angled triangles with base 16 cm and height 12 cm. The prism is 18 cm long.



The volume of the prism is equal to the volume of the cube.

Find the surface area of the cube. You must show your working.

Question 11

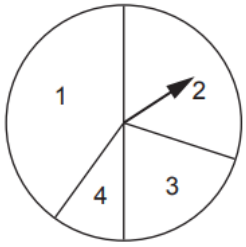
Amir, Beth and Charlie work in a cafe. Customers give spare change as tips. At the end of each week, Amir, Beth and Charlie share the total amount of tips between them in the ratio matching the number of hours they worked that week. This week:

Amir's share of the tips was £25.40.
Beth worked twice as many hours as Amir.
Charlie worked 5 more hours than Amir.
The total hours worked by Amir, Beth and Charlie was 85 hours.

Calculate the total amount of tips received this week. **You must show your working.**

Question 12

A student has a spinner with sectors numbered 1, 2, 3 and 4. The table shows the probability of each score:



The table shows the probability of each score.

Score	1	2	3	4
Probability	0.4	0.3	0.2	0.1

The student spins the spinner twice. Calculate the probability that the student gets the same score on each spin.

Question 13

A car registration plate has two letters, a number from 10–99 and three letters.

For example: **AB56 CDE**. The letters I and O are not used, leaving 24 possible letters.

Show that there are approximately 720 million possible car registration plates of this form.