GCSE Grade 5

Maths Booklet 6

Paper 3H
Calculator

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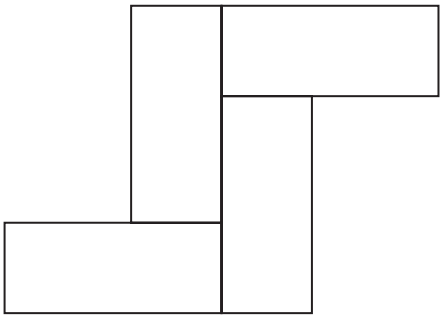
1 Here is a rectangle.

The length of the rectangle is 7 cm longer than the width of the rectangle.

4 of these rectangles are used to make this 8-sided shape.



The perimeter of the 8-sided shape is 70 cm.

Work out the area of the 8-sided shape.

..... cm^2

(Total for Question 1 is 5 marks)

2 Work out $(13.8 \times 10^{7}) \times (5.4 \times 10^{-12})$
Give your answer as an ordinary number.

.....

(Total for Question 2 is 2 marks)

3 When a drawing pin is dropped it can land point down or point up.

Lucy, Mel and Tom each dropped the drawing pin a number of times.

The table shows the number of times the drawing pin landed point down and the number of times the drawing pin landed point up for each person.

	Lucy	**Mel**	**Tom**
point down	31	53	16
point up	14	27	9

Rachael is going to drop the drawing pin once.

(a) Whose results will give the best estimate for the probability that the drawing pin will land point up?
Give a reason for your answer.

.....

.....

(1)

Stuart is going to drop the drawing pin twice.

(b) Use all the results in the table to work out an estimate for the probability that the drawing pin will land point up the first time and point down the second time.

.....

(2)

(Total for Question 3 is 3 marks)

4 Ibrar bought a house for £145 000

The value of the house depreciated by 4% in the first year.
The value of the house depreciated by 2.5% in the second year.

Ibrar says,

"4 + 2.5 = 6.5 so in two years the value of my house depreciated by 6.5%"

(a) Is Ibrar right?
You must give a reason for your answer.

.....

.....

.....

(2)

The value of Ibrar's house increases by x% in the third year.
At the end of the third year the value of Ibrar's house is £140 000

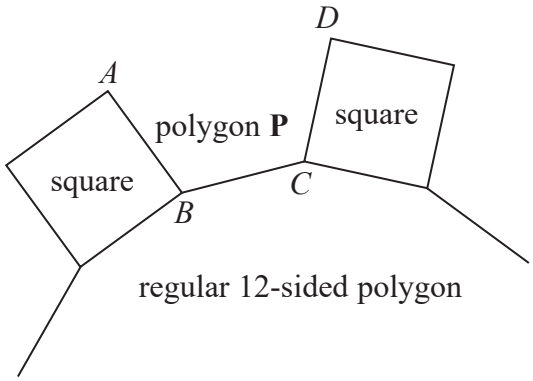
(b) Work out the value of x.
Give your answer correct to 3 significant figures.

.....

(3)

(Total for Question 4 is 5 marks)

5 In the diagram, AB, BC and CD are three sides of a regular polygon **P**.



Show that polygon **P** is a hexagon.
You must show your working.

(Total for Question 5 is 4 marks)

6 The density of apple juice is 1.05 grams per cm^3.

The density of fruit syrup is 1.4 grams per cm^3.

The density of carbonated water is 0.99 grams per cm^3.

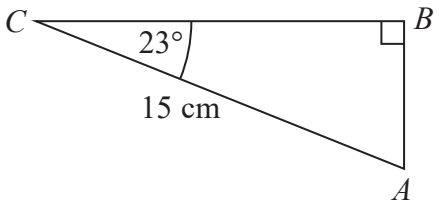
25 cm^3 of apple juice are mixed with 15 cm^3 of fruit syrup and
280 cm^3 of carbonated water to make a drink with a volume of 320 cm^3.

Work out the density of the drink.
Give your answer correct to 2 decimal places.

.....g/cm^3

(Total for Question 6 is 4 marks)

7 *ABC* is a right-angled triangle.



Calculate the length of *AB*.
Give your answer correct to 3 significant figures.

.....cm

(Total for Question 7 is 2 marks)

8 A square, with sides of length x cm, is inside a circle.
Each vertex of the square is on the circumference of the circle.

The area of the circle is 49 cm^2.

Work out the value of x.
Give your answer correct to 3 significant figures.

.....

(Total for Question 8 is 4 marks)