GCSE Grade 5

Maths Booklet 1

Paper 3H
Calculator

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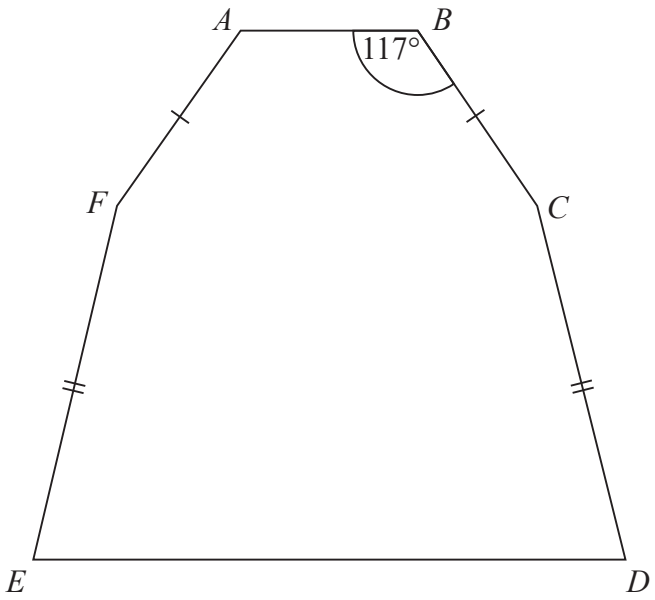
1 The diagram shows a hexagon.
The hexagon has one line of symmetry.



$FA = BC$
$EF = CD$
Angle $ABC = 117°$

Angle $BCD = 2 \times$ angle CDE

Work out the size of angle AFE.
You must show all your working.

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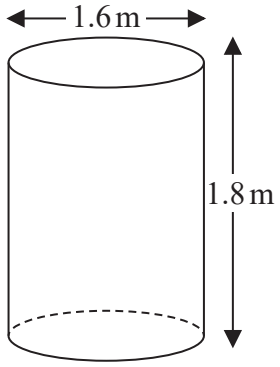
(Total for Question 1 is 4 marks)

2 Jeremy has to cover 3 tanks completely with paint.

Each tank is in the shape of a cylinder with a top and a bottom.
The tank has a diameter of 1.6 m and a height of 1.8 m.



Jeremy has 7 tins of paint.
Each tin of paint covers 5 m^2

Has Jeremy got enough paint to cover completely the 3 tanks?
You must show how you get your answer.

(Total for Question 2 is 5 marks

3 Work out

$$\sqrt{\frac{2.5 \times \sin 43°}{8.2^2 - 50.5}}$$

Give your answer correct to 3 significant figures.

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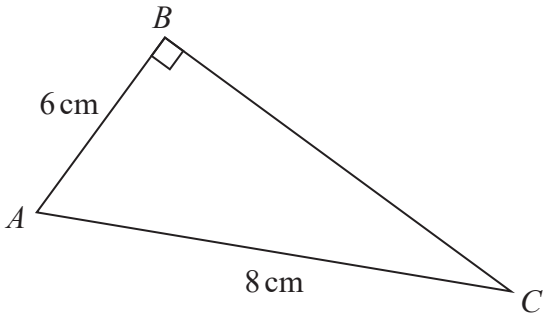
(Total for Question 3 is 2 marks)

4 ABC is a right-angled triangle.



Here is Sarah's method to find the length of BC.

$$\begin{aligned} BC^2 &= AB^2 + AC^2 \\ &= 6^2 + 8^2 \\ &= 100 \\ BC &= 10 \end{aligned}$$

(a) What mistake has Sarah made in her method?

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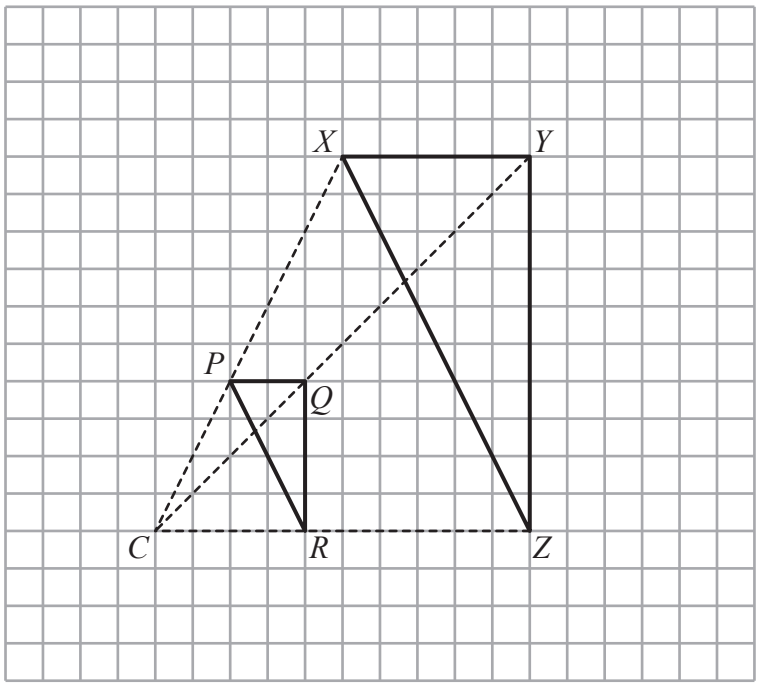
(1)



Roy is going to enlarge triangle PQR with centre C and scale factor $1\frac{1}{2}$

He draws triangle XYZ.

(b) Explain why Roy's diagram is **not** correct.

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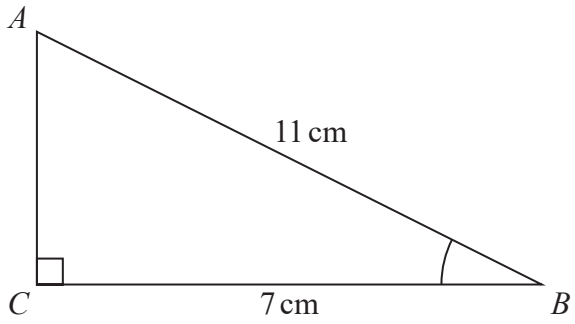
(1)

(Total for Question 4 is 2 marks)

5 ABC is a right-angled triangle.



(a) Work out the size of angle ABC.
Give your answer correct to 1 decimal place.

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(2)

The length of the side AB is reduced by 1 cm.

The length of the side BC is still 7 cm.
Angle ACB is still 90°

(b) Will the value of cos ABC increase or decrease?
You must give a reason for your answer.

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(1)

(Total for Question 5 is 3 marks)

6 There are some counters in a bag.
The counters are red or white or blue or yellow.

Bob is going to take at random a counter from the bag.

The table shows each of the probabilities that the counter will be blue or will be yellow.

Colour	red	white	blue	yellow
Probability			0.45	0.25

There are 18 blue counters in the bag.

The probability that the counter Bob takes will be red is twice the probability that the counter will be white.

(a) Work out the number of red counters in the bag.

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(4)

A marble is going to be taken at random from a box of marbles.
The probability that the marble will be silver is 0.5

There must be an even number of marbles in the box.

(b) Explain why.

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(1)

(Total for Question 6 is 5 marks)

7 Solve $\frac{5 - x}{2} = 2x - 7$

$x =$ .....

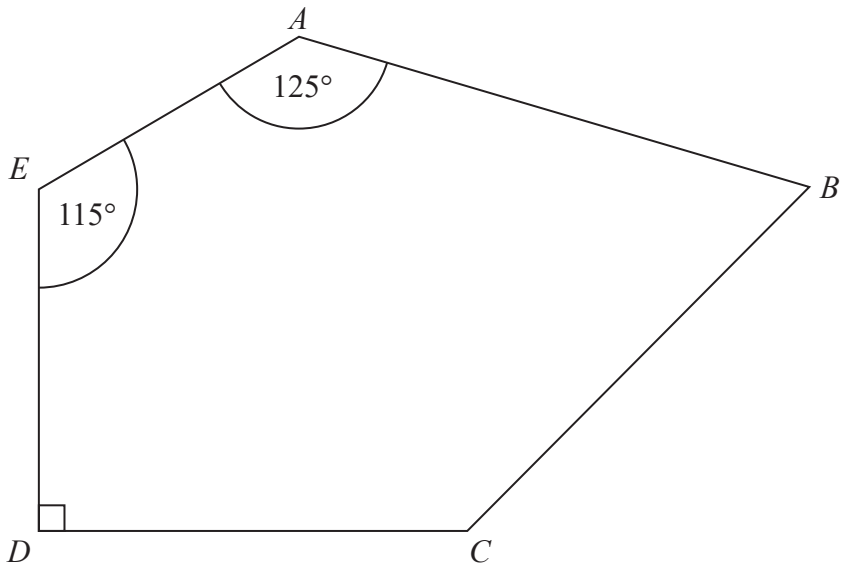
(Total for Question 7 is 3 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

8 *ABCDE* is a pentagon.



Angle *BCD* = 2 × angle *ABC*

Work out the size of angle *BCD*.
You must show all your working.

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(Total for Question 8 is 5 marks)