Name	Class

MATHS TEACHER HUB

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Angles in polygons

(9 – 1) Topic booklet

Higher

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

Instructions

•Use **black** ink or ball-point pen.
•**Fill in the boxes** at the top of this page with your name, centre number and candidate number.
•Answer **all** questions.
•Answer the questions in the spaces provided
– *there may be more space than you need*.
•Diagrams are NOT accurately drawn, unless otherwise indicated.
•You must **show all your working out.**
•If the question is a **1H** question you are not allowed to use a calculator.
•If the question is a **2H** or a **3H** question, you may use a calculator to help you answer.

Information

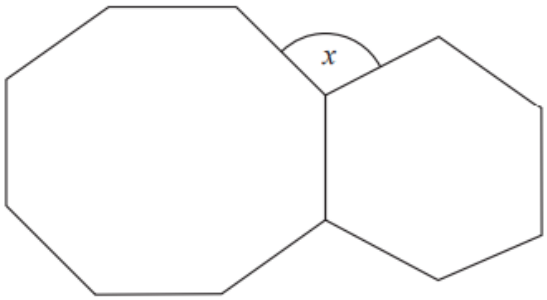
•The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question*.

Advice

•Read each question carefully before you start to answer it.
•Keep an eye on the time.
•Try to answer every question.
•Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

4



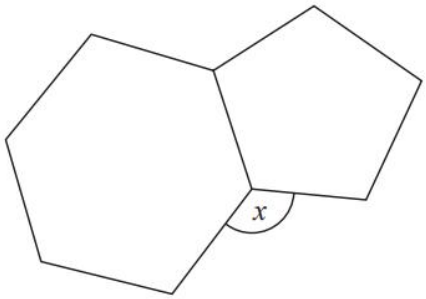
The diagram shows a regular octagon and a regular hexagon.

Find the size of the angle marked x
You must show all your working.

$x =$ ..... °

(Total for Question 4 is 3 marks)

5 Here is a regular hexagon and a regular pentagon.

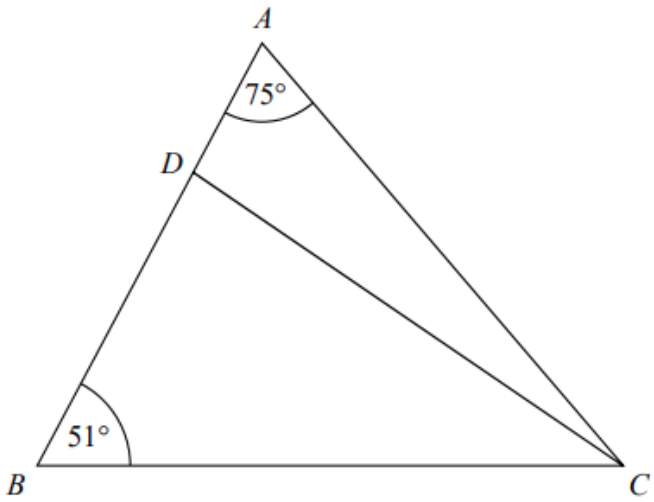


Work out the size of the angle marked x.
You must show all your working.

.....°

(Total for Question 5 is 3 marks)

5 The diagram shows triangle ABC.



ADB is a straight line.

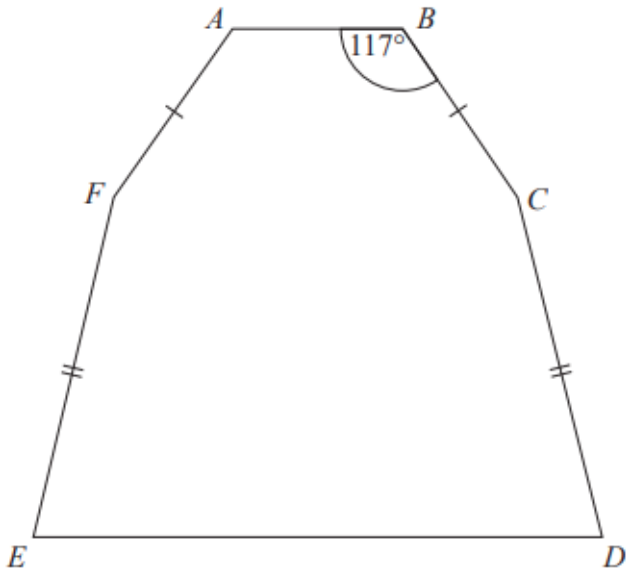
the size of angle DCB : the size of angle $ACD = 2 : 1$

Work out the size of angle BDC.

.....°

(Total for Question 5 is 4 marks)

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



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

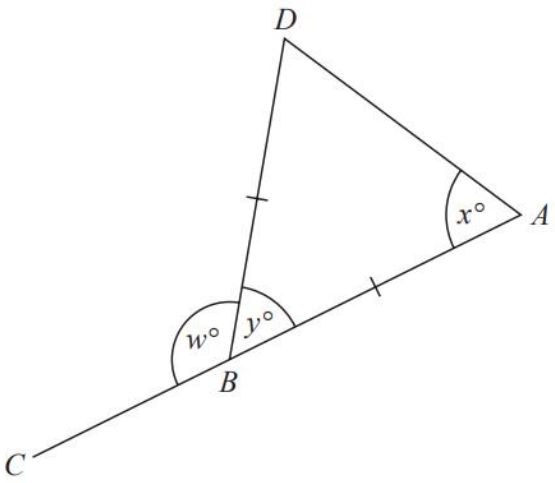
Angle $BCD = 2 \times$ angle CDE

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

.....°

(Total for Question 5 is 4 marks)

6 The diagram shows an isosceles triangle ABD and the straight line ABC.



$BA = BD$

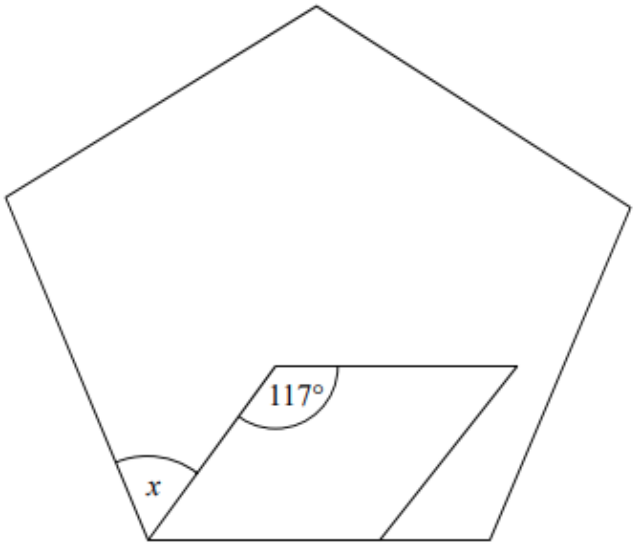
$x : y = 2 : 1$

Work out the value of w.

$w =$ .....

November 2023 – Paper 1H **(Total for Question 6 is 4 marks)**

8 The diagram shows a regular pentagon and a parallelogram.

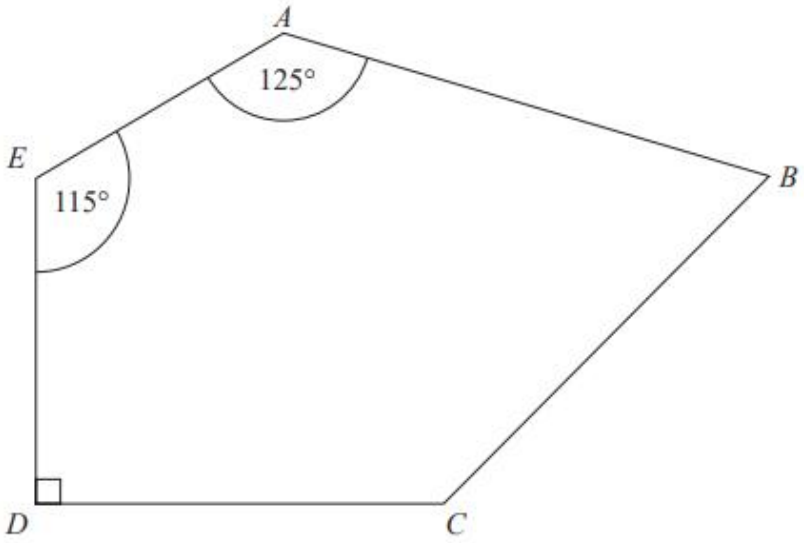


Work out the size of the angle marked x.
You must show all your working.

.....°

November 2019 – Paper 3H **(Total for Question 8 is 4 marks)**

8 *ABCDE* is a pentagon.



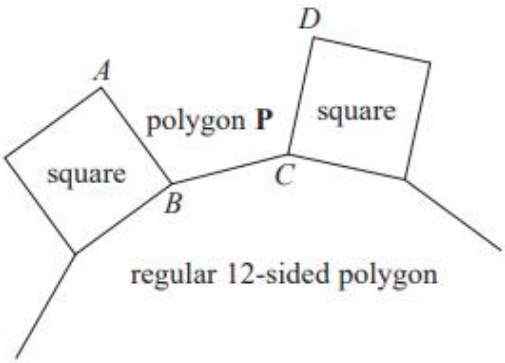
Angle *BCD* = 2 × angle *ABC*

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

.....°

(Total for Question 8 is 5 marks)

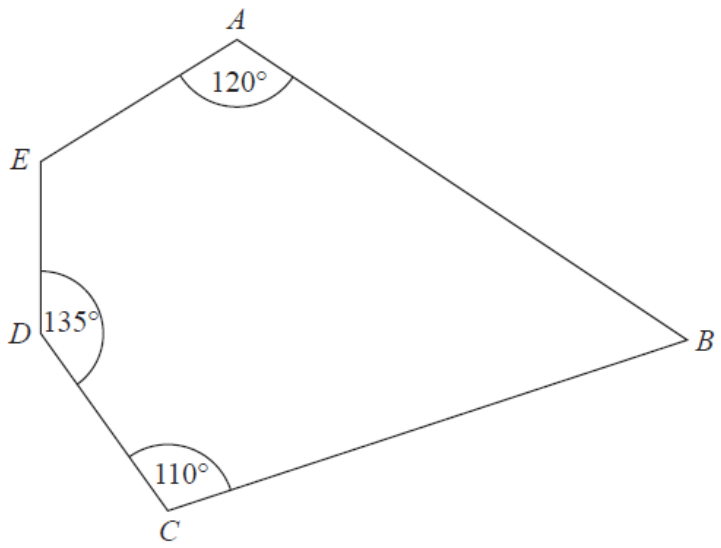
5 In the diagram, AB, BC and CD are three sides of a regular polygon **P**.



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

(Total for Question 5 is 4 marks)

10 Here is a pentagon.



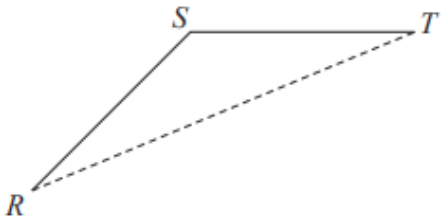
Angle $AED = 4 \times$ angle ABC

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

.....°

(Total for Question 10 is 4 marks)

12



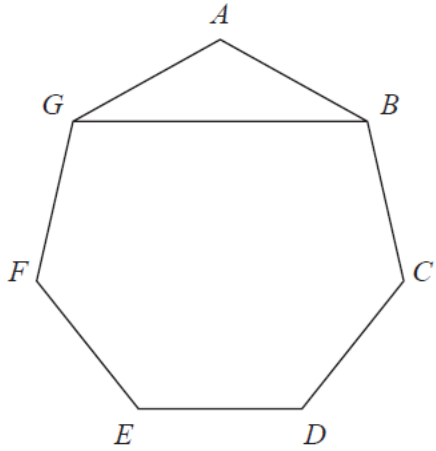
RS and *ST* are 2 sides of a regular 12-sided polygon.
RT is a diagonal of the polygon.

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

.....°

(Total for Question 12 is 3 marks)

26 *ABCDEFG* is a regular heptagon.



The area of triangle *ABG* is 30 cm^2

Calculate the length of *GB*.
Give your answer correct to 3 significant figures.
You must show all your working.

..... cm

(Total for Question 26 is 5 marks)