

Write your name here									
Surname	Other names								
Centre Number	Candidate Number								
Pearson Edexcel Level 1/Level 2 GCSE (9–1)	<table border="1" style="width: 100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> </tr> </table>								
<h1 style="margin: 0;">Mathematics</h1> <h2 style="margin: 0; color: #0070C0;">Angles: Geometrical Reasoning</h2>									
Foundation Tier	Paper Reference 1MA1								
You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.	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.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

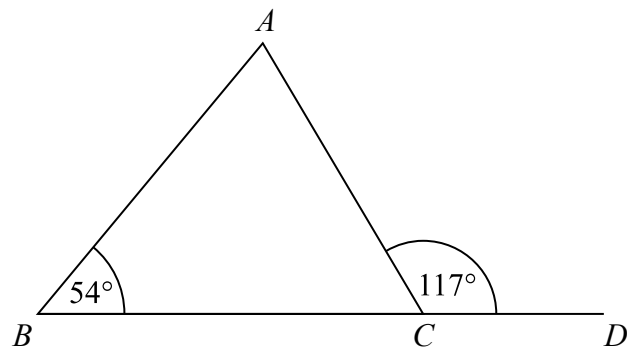
- The total mark for this paper is **30**. There are **8** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how 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.

1MA1 Foundation themed papers: Angles: Geometrical reasoning

1



BCD is a straight line.

ABC is a triangle.

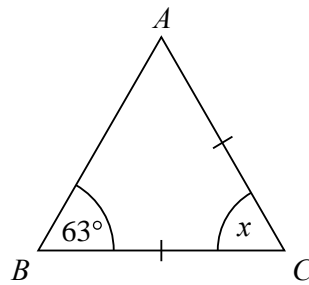
Show that triangle ABC is an isosceles triangle.

Give a reason for each stage of your working.

(Total for Question 1 is 4 marks)

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2 Mary needs to work out the size of angle x in this diagram.



She writes

$x = 63^\circ$ because base angles of an isosceles triangle are equal.

Mary is wrong.

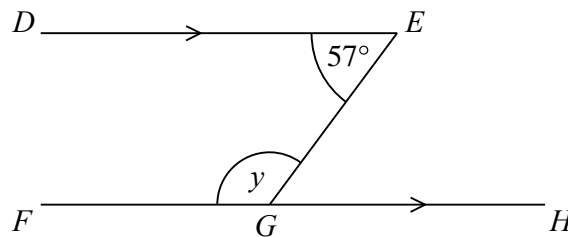
(a) Explain why.

.....

.....

(1)

William needs to work out the size of angle y in this diagram.



William writes

Working	Reason
angle $EGH = 57^\circ$	because alternate angles are equal
$y = 180^\circ - 57^\circ$ $y = 123^\circ$	because angles on a straight line add up to 180°

One of William's reasons is wrong.

(b) Write down the correct reason.

.....

.....

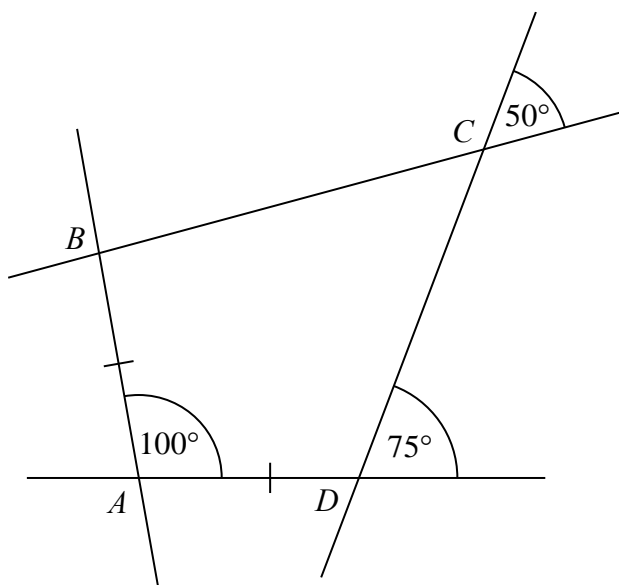
(1)

(Total for Question 2 is 2 marks)

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3 The diagram shows quadrilateral $ABCD$ with each of its sides extended.



$AB = AD$

Show that $ABCD$ is a kite.

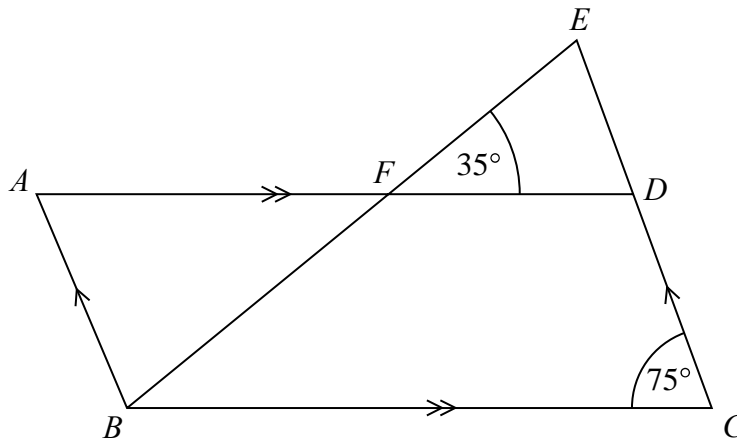
Give a reason for each stage of your working.

(Total for Question 3 is 4 marks)

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4



$ABCD$ is a parallelogram.

EDC is a straight line.

F is the point on AD so that BFE is a straight line.

Angle $EFD = 35^\circ$

Angle $DCB = 75^\circ$

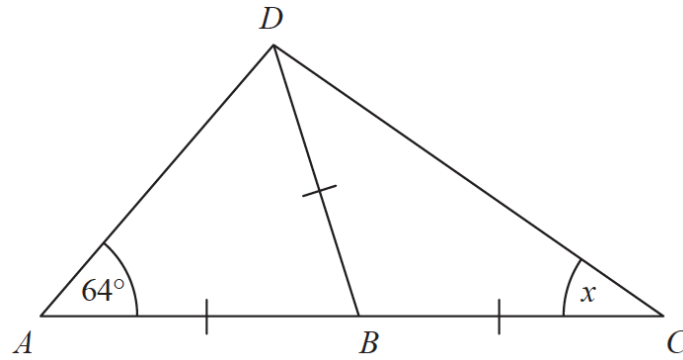
Show that angle $ABF = 70^\circ$

Give a reason for each stage of your working.

(Total for Question 4 is 4 marks)

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5



ABC is a straight line.

$AB = BC = BD$.

Angle $DAB = 64^\circ$

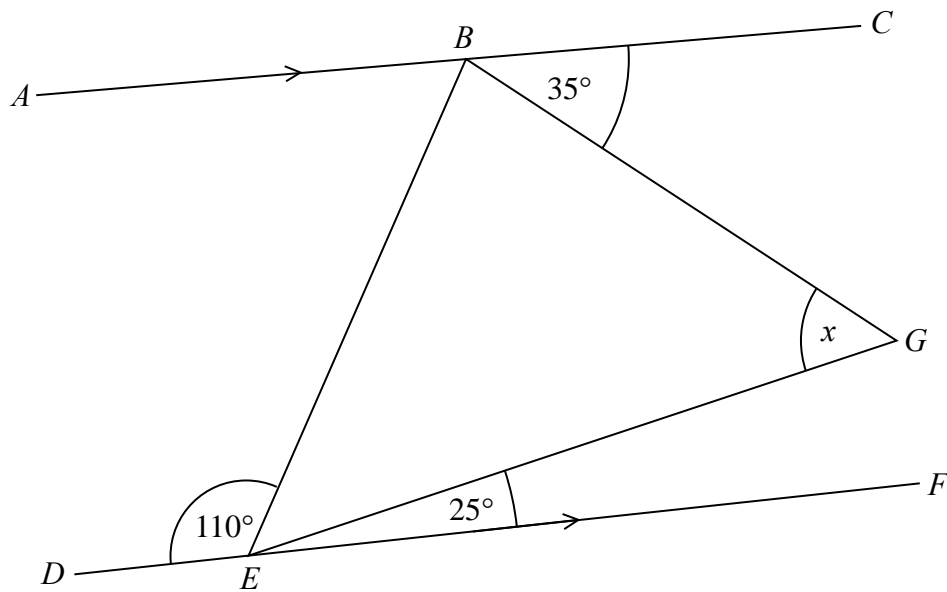
Work out the size of the angle marked x .

Give a reason for each stage of your working.

(Total for Question 5 is 4 marks)

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6 BEG is a triangle.



ABC and DEF are parallel lines.

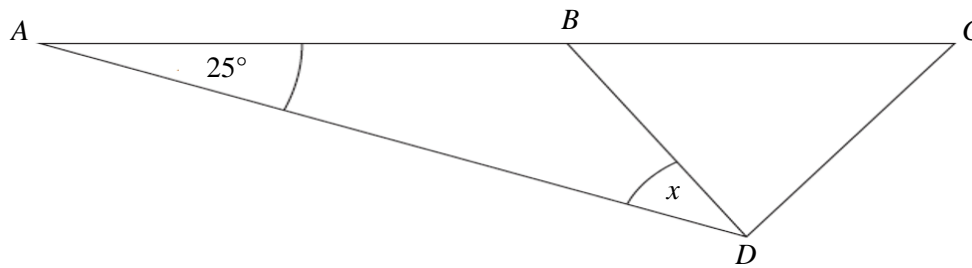
Work out the size of angle x .

Give a reason for each stage of your working.

.....°
(Total for Question 6 is 4 marks)

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7 The diagram shows triangle ABD and triangle BCD .



ABC is a straight line.
 BCD is an equilateral triangle.

Angle $DAB = 25^\circ$

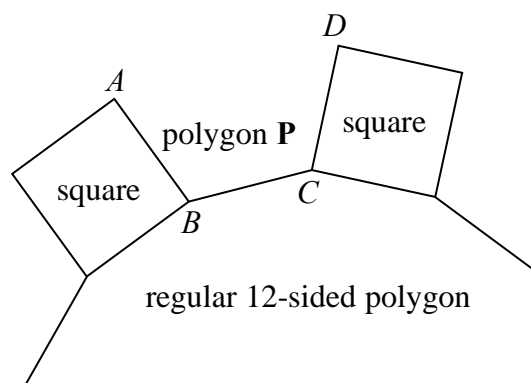
Work out the size of the angle marked x .
Give a reason for each stage of your working.

..... °

(Total for Question 7 is 4 marks)

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- 8 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 8 is 4 marks)

TOTAL MARKS FOR PAPER: 30