



Aberdare Community School
Mathematics Department

WJEC GCSE

Higher – Non Calculator
Shape

Angle calculations - later questions

Name:

Set:

Date:

Teacher:

- (c) Find the size of the angle marked z .

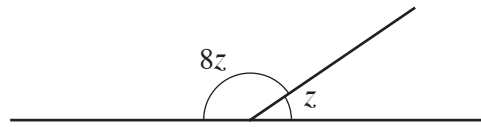


Diagram not drawn to scale.

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$z = \dots\dots\dots^\circ$

[2]

5. In the diagram below, $ABCD$ and $DCEF$ are parallelograms with $\widehat{BCE} = 135^\circ$ and $\widehat{ABC} = 80^\circ$. Find the size of the angle marked x .

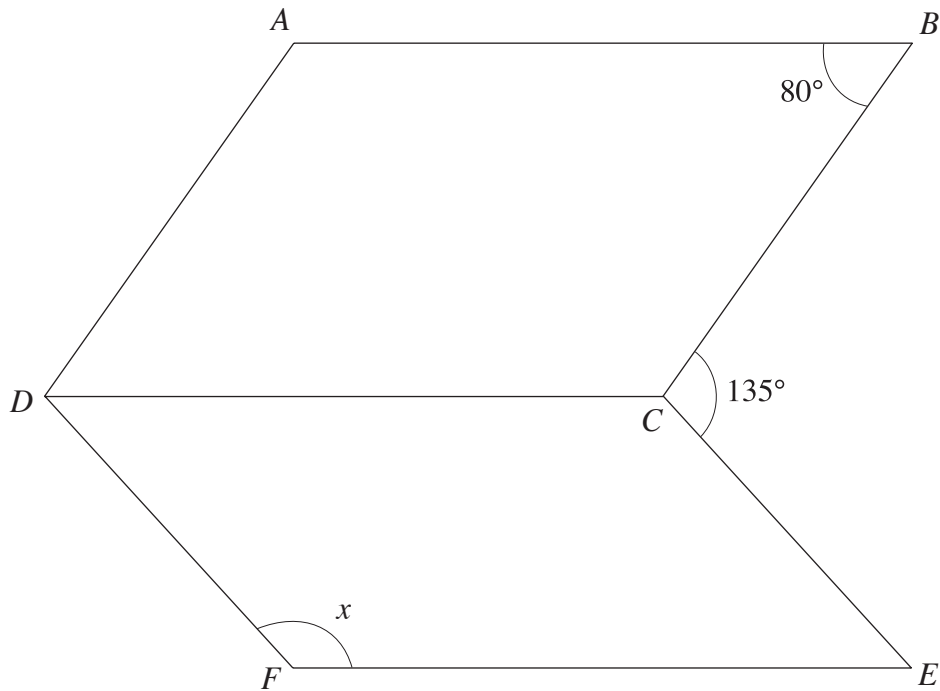


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[4]

5.

- (c) Two exterior angles of a triangle are 150° and 110° . Calculate the size of the third exterior angle of the triangle.

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[3]

4. (a) The diagram shows three parallel lines and another line that crosses the parallel lines. Find the angles marked a , b , c and d .

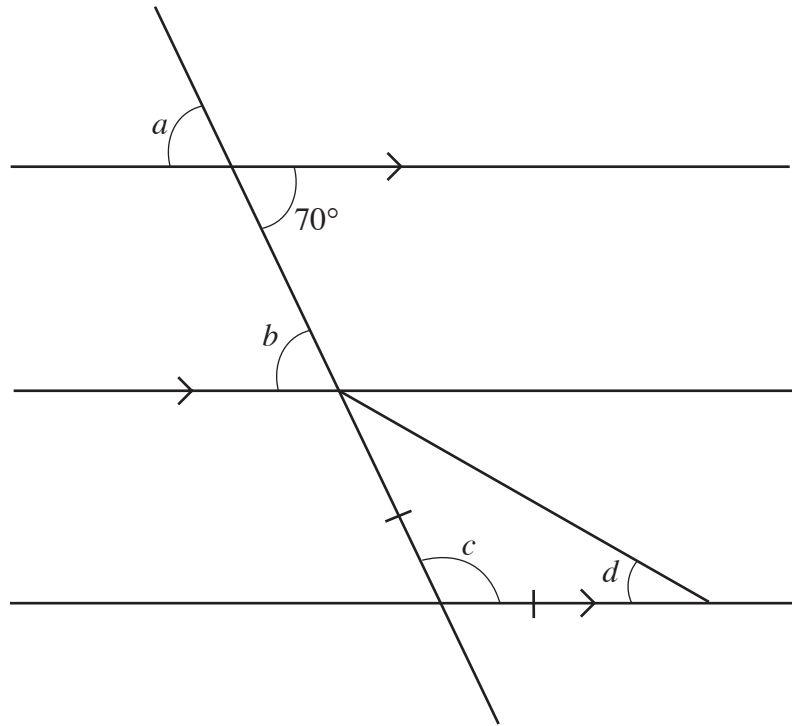


Diagram not drawn to scale.

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$$a = \dots\dots\dots^\circ \quad b = \dots\dots\dots^\circ \quad c = \dots\dots\dots^\circ \quad d = \dots\dots\dots^\circ$$

[4]

(c) The diagram below shows a regular octagon.

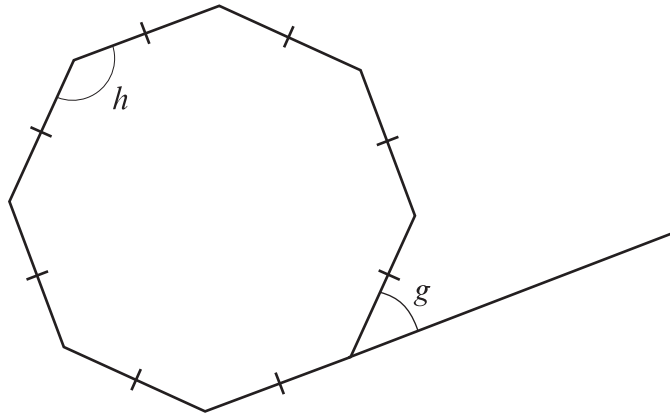


Diagram not drawn to scale.

Find the size of each of the angles marked g and h .

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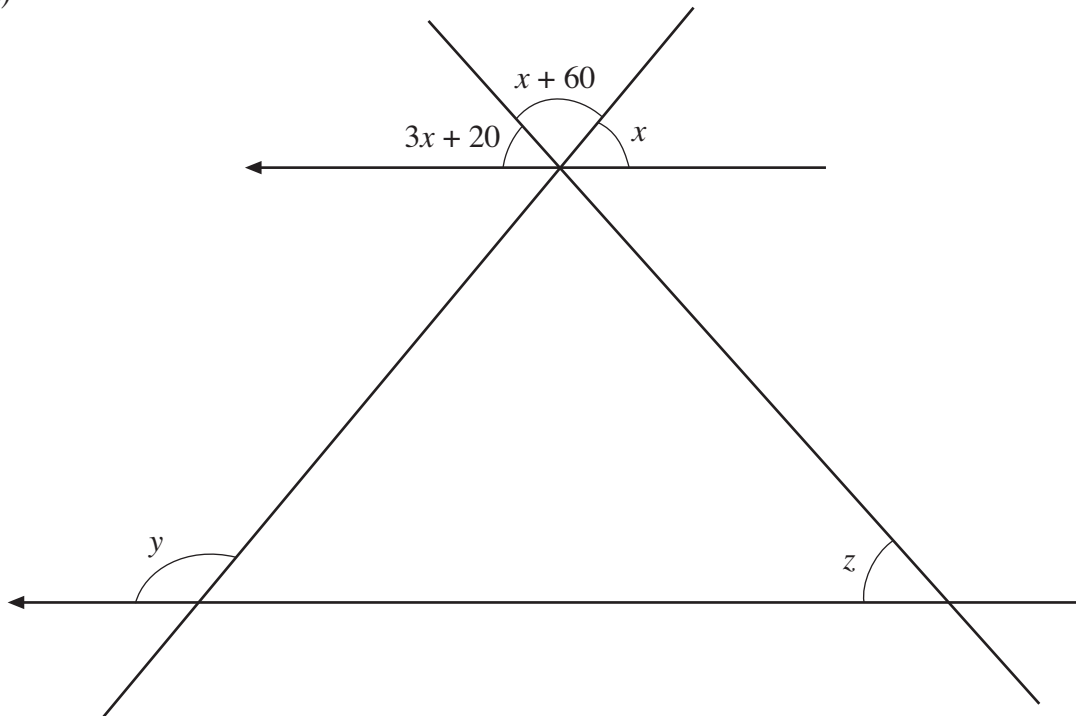
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$$g = \dots\dots\dots^\circ$$

$$h = \dots\dots\dots^\circ$$

[3]

3. (a)

*Diagram not drawn to scale.*

All angles are measured in degrees.
Find the size of angles x , y and z .

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$x =$, $y =$, $z =$

[5]

6. A robot moves 6 steps forward, and then turns left through 12° . This movement is then repeated many times, with the robot moving another 6 steps forward and then turning left through 12° each time. Will the robot's path form a polygon? Give an explanation for your answer and show all your working.

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[5]

5. (a) Write down the size of the angles marked a and b in the diagram.

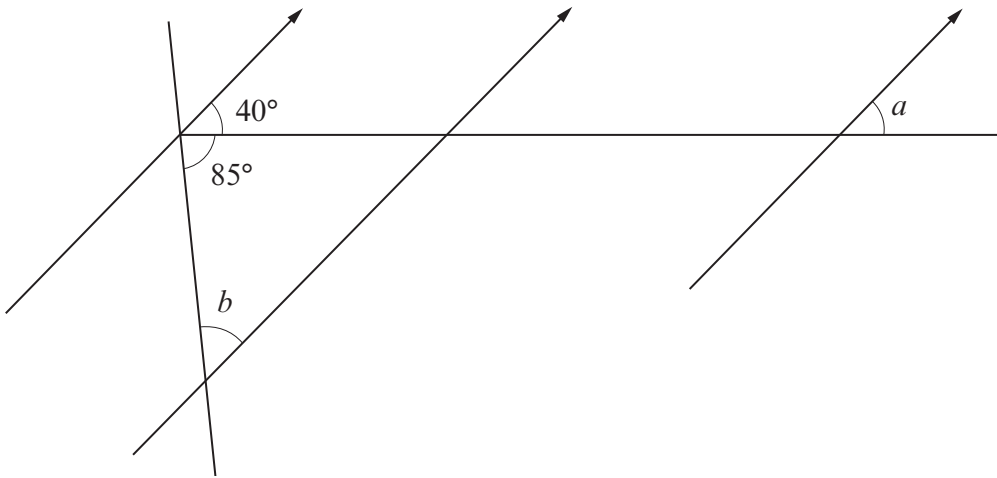


Diagram not drawn to scale

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$a = \dots\dots\dots^\circ$ $b = \dots\dots\dots^\circ$

[3]

- (b) The diagram shows a regular 8 sided polygon.

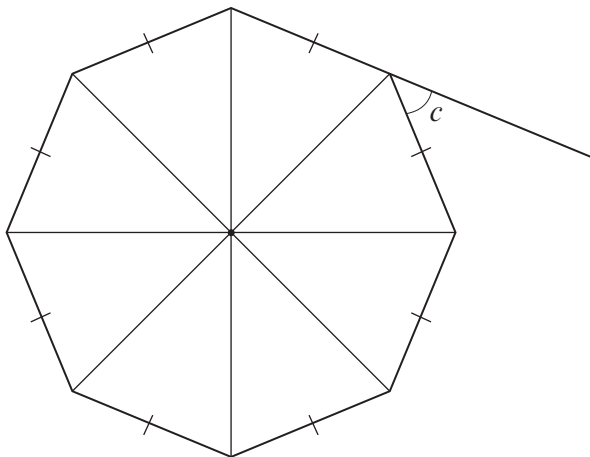


Diagram not drawn to scale

Showing all your working, calculate the size of the angle marked c in the diagram.

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[2]

4. (a) Calculate the size of each of the angles marked x , y and z in the diagram below.

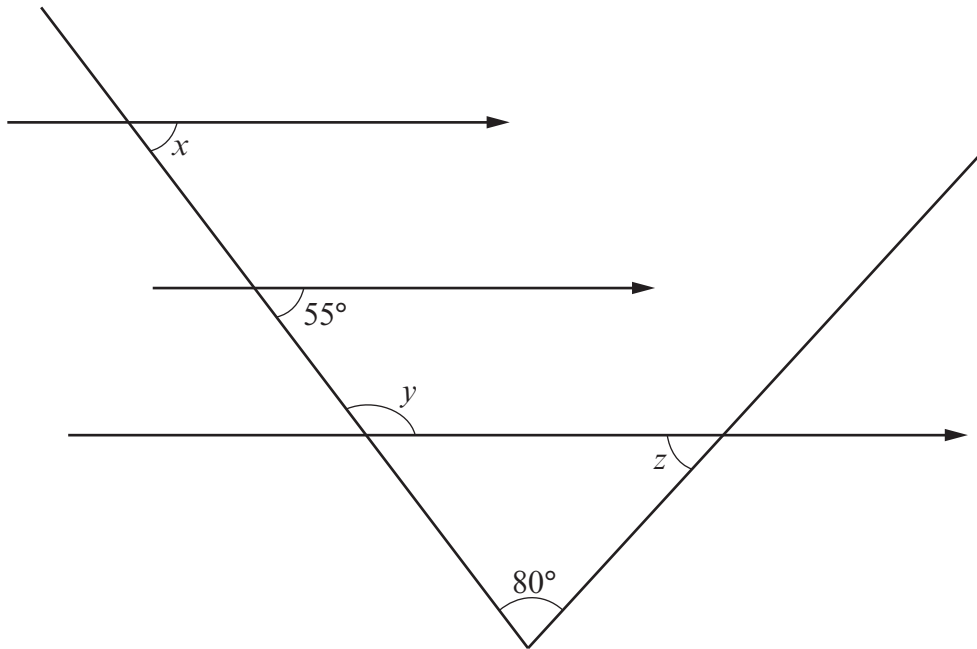


Diagram not drawn to scale

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$x = \dots\dots\dots^\circ$ $y = \dots\dots\dots^\circ$ $z = \dots\dots\dots^\circ$

[4]

- (b) Calculate the size of each of the exterior angles of a regular pentagon.

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[3]



6. *You will be assessed on the quality of your written communication in this question.*

Explain why the sum of the interior angles of any quadrilateral is always 360° .

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[5]



2. (a) *You will be assessed on the quality of your written communication in this part of the question.*

Enzo is given clues to help him solve a problem.

Clues:

- The shape is a polygon
- The shape has an odd number of sides
- The shape is not a triangle
- The shape has fewer than 7 sides
- Three of the interior angles each measure 106°
- All the other angles are marked with the letter x

Solve Enzo's problem to find the size of x .

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[8]



(b)

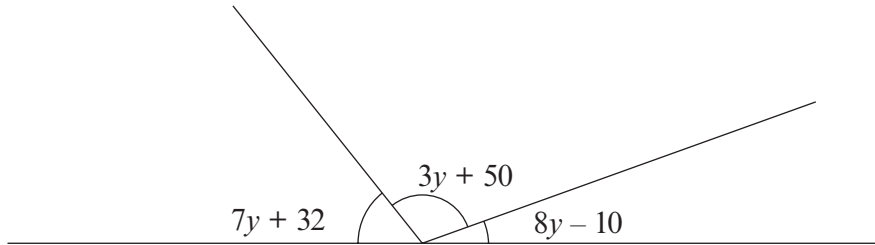


Diagram not drawn to scale

All of the angles are measured in degrees.

Find the size of each of the three angles.

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$$7y + 32 = \dots\dots\dots^\circ \quad 3y + 50 = \dots\dots\dots^\circ \quad 8y - 10 = \dots\dots\dots^\circ$$

[5]



7. Two of the exterior angles of a pentagon are 110° and 130° .
The other exterior angles of this pentagon are all equal.
Calculate the size of the largest of the interior angles of this pentagon.

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[6]

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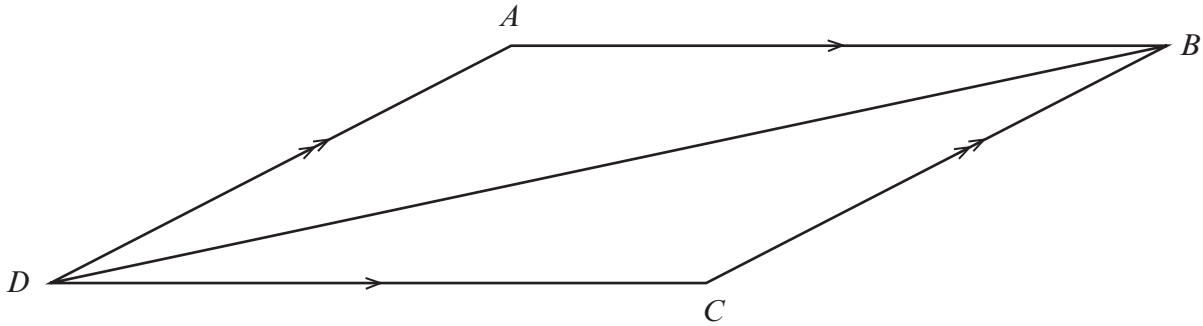
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3.

*Diagram not drawn to scale*

The diagram shows a parallelogram $ABCD$ with $\widehat{ADB} = 17^\circ$ and $\widehat{ABC} = 40^\circ$.
Calculate the size of each of the following angles.

(a) \widehat{ADC}

..... [1]

(b) \widehat{DBC}

..... [1]

(c) \widehat{BCD}

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 [2]

8. A certain pentagon has 5 angles known as the first, second, third, fourth and fifth angles.

- The second angle is twice the size of the first angle.
- The third angle is three times the size of the second angle.
- The fourth and the fifth angles are both right angles.

Calculate the size of the **largest angle** in the pentagon.

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[7]

4. (a) The two smaller angles in a kite are 30° and 70° .
Calculate the size of the other angles of this kite.

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[3]

8. *You will be assessed on the quality of written communication in this part of the question.*

Three of the exterior angles of a pentagon are 105° , 115° and 80° .
The other two exterior angles are equal.
Calculate the size of each of the **interior** angles of the pentagon.
You must show all your working.

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[7]

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[3]

8. Martha is laying out a new design for a flowerbed in her garden, as shown in the diagram below.

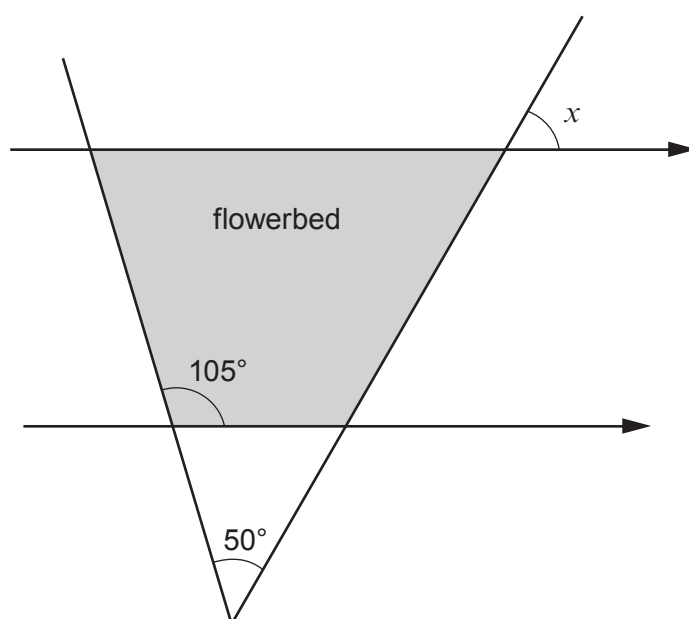


Diagram not drawn to scale

- (a) Calculate the size of angle x .

[2]

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$x = \dots\dots\dots^\circ$

7. Four of the interior angles of a seven-sided polygon are 114° , 150° , 160° and 170° . The other three interior angles of this polygon are equal. Calculate the size of each of the other three interior angles. [5]

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8. In the diagram, angles a , b and c are measured in degrees.

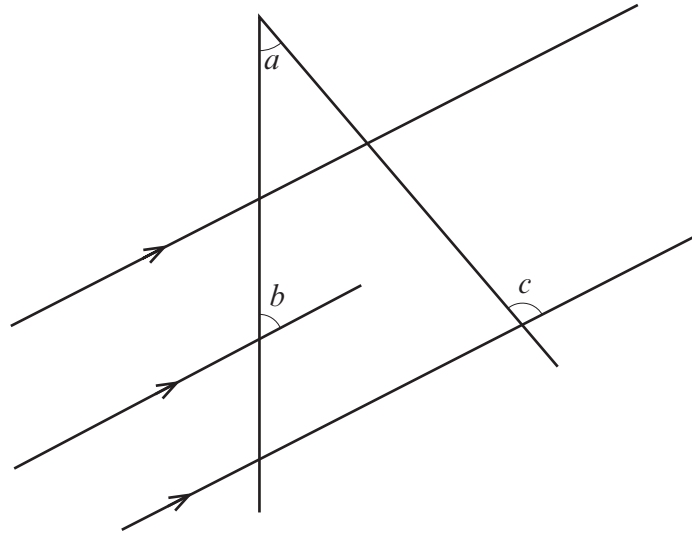


Diagram not drawn to scale

Find the size of angle c in terms of a and b .
 You must show all your working, which may be indicated on the diagram.

[3]

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10. Maggie has lots of tiles.
All of her tiles are in the shape of regular polygons.
The edges of all the tiles have the same length.

She places two 12-sided tiles to meet edge-to-edge.
Maggie places a different-shaped tile with these two tiles.
She finds that the 3 tiles tessellate.

By calculation, find the number of sides of this third tile.
You must show all your working.

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7. There are two regular polygons, X and Y .
The size of each **exterior** angle in regular polygon X , is 9° .
Each **interior** angle of regular polygon Y is 120° .

Complete the sentences below.

[4]

Regular polygon X has sides.

Regular polygon Y has sides.

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4. $ABCD$ is a parallelogram. All the angles are measured in degrees.

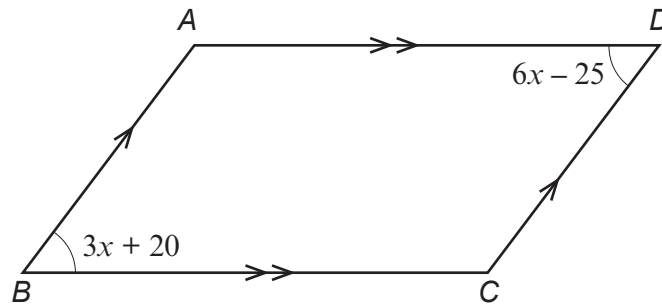


Diagram not drawn to scale

Find the size of \hat{BCD} .

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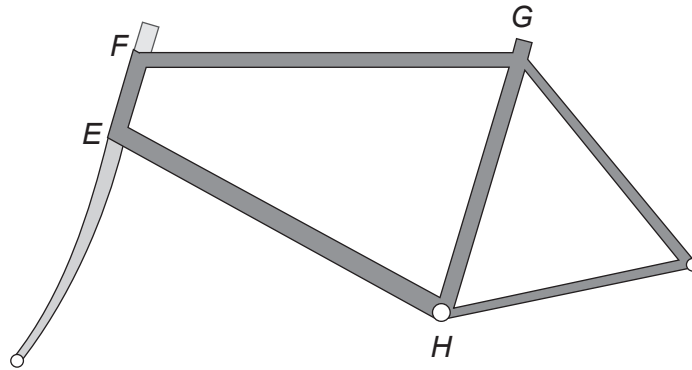
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- (b) Abhu's friend Val has a bike frame for sale.
The diagram below is a scale drawing of Val's bike frame.



Abhu believes that FE is parallel to GH .
Use your protractor to show that Abhu is correct.
You must give reasons for your answer.

[2]

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5. All the angles in the following quadrilateral are measured in degrees. Find the size of the largest angle.

Examiner
only

[5]

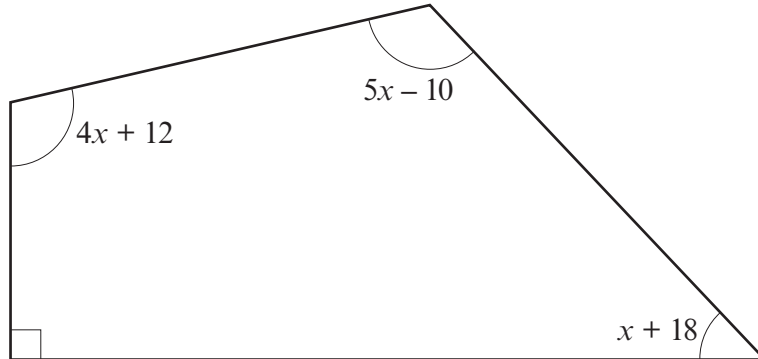


Diagram not drawn to scale

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