HIAS MOODLE+ RESOURCE

Variation using a maths GCSE question

Year 11 (Foundation)

HIAS Maths Team (secondary)
March 2021
Final version

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Overview

This document contains…

A set of connected questions that link to a past GCSE question

Points to consider when using this resource

Each variation of the exam question should be considered as part of a learning journey. Teachers may wish to consider models and images to support students to access the problems.

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Year 11 F: variation: Edexcel 2018 P3 Q26

Missing angles in polygons

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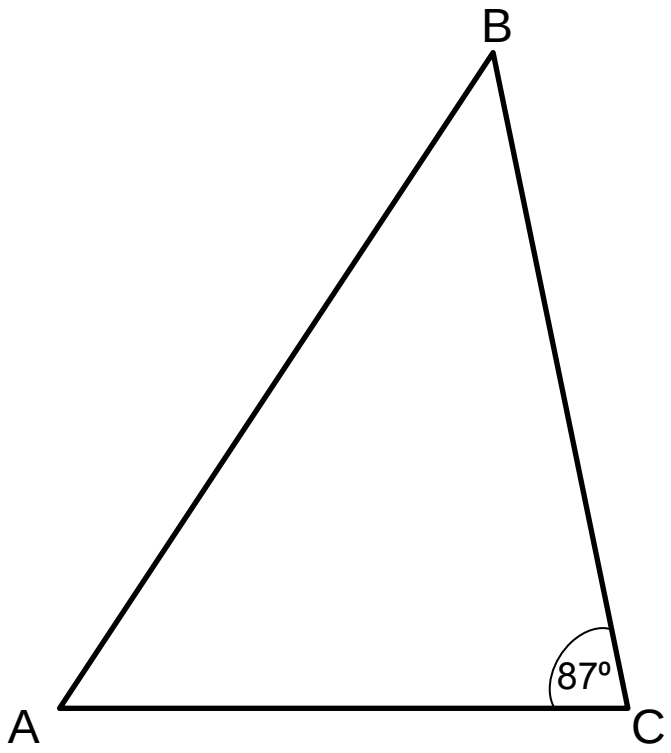
Prior knowledge to review

- Conventions for labelling geometric diagrams
- Knowledge of the sum of the angles in triangles and quadrilaterals
- Strategies to find the angle sums in polygons
- Write a linear equation to describe the angle sum in a polygon
- Solve a linear equation



ABC is a scalene triangle

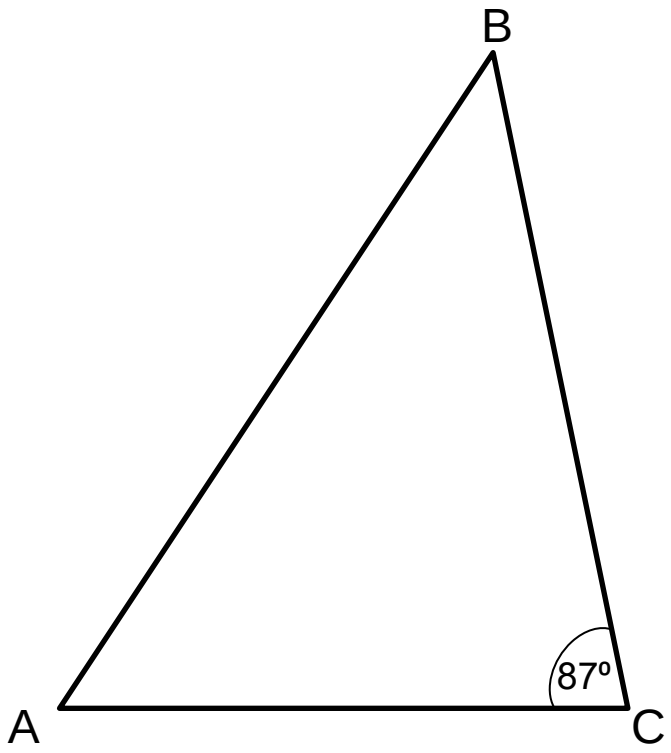
angle ACB = 87º

angle BAC = 2 x angle ABC

Work out the size of angle BAC

Show your working

Solution



ABC is a scalene triangle

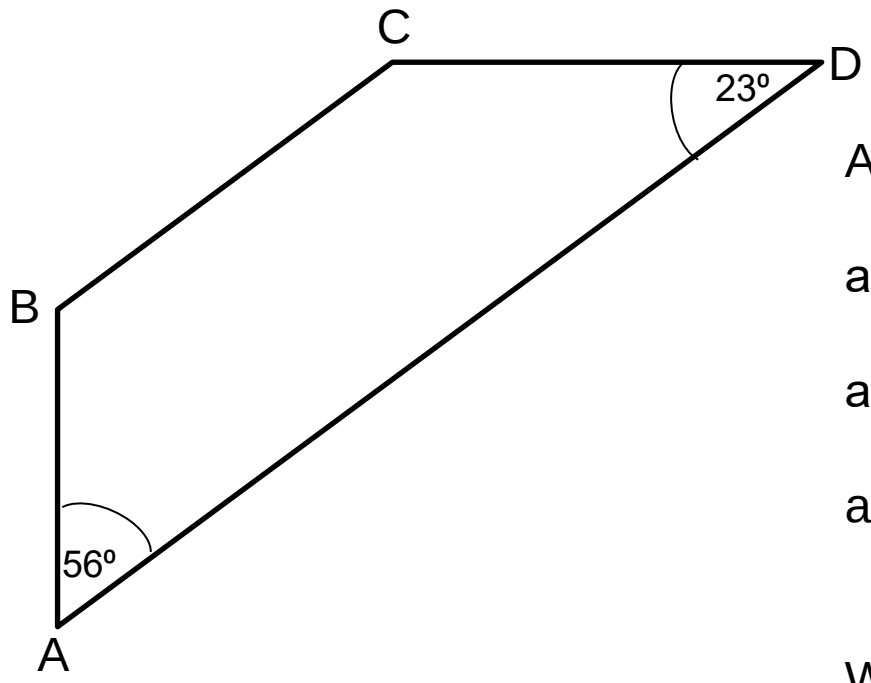
angle ACB = 87º

angle BAC = 2 x angle ABC

Work out the size of angle BAC

Show your working

Let angle ABC = x
So angle BAC = 2x
Angles in a triangle add up to 180º
87º + x + 2x = 180º
3x = 93º
x = 31º so 2x = angle BAC = 2x = 62 º



ABCD is a quadrilateral

angle ADC = 23º

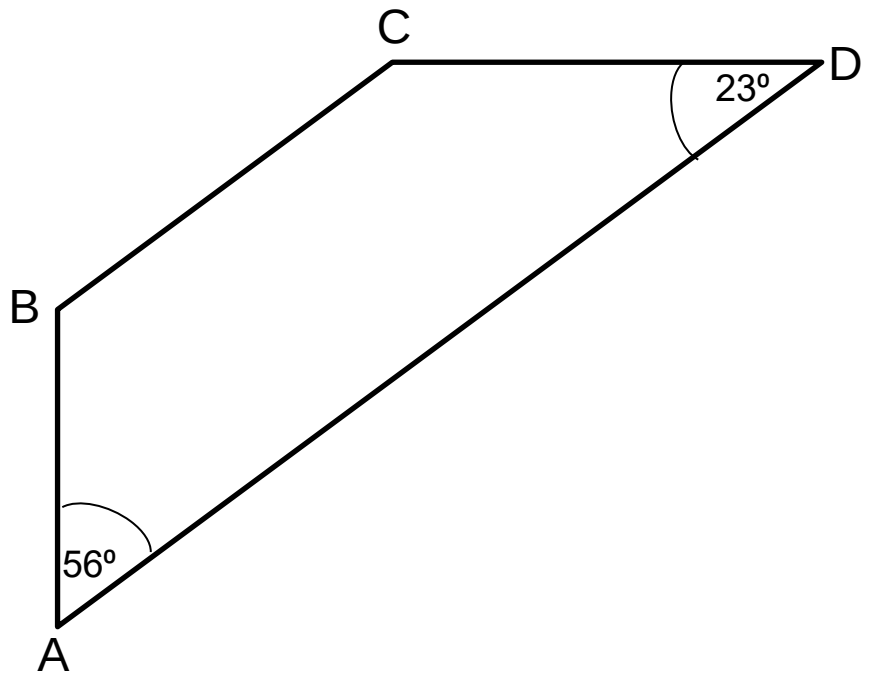
angle BAD = 56º

angle ABC = angle BCD

Work out the size of angle BCD

Show your working

Solution



ABCD is a quadrilateral

angle ADC = 23º

angle BAD = 56º

angle ABC = angle BCD

Work out the size of angle BCD

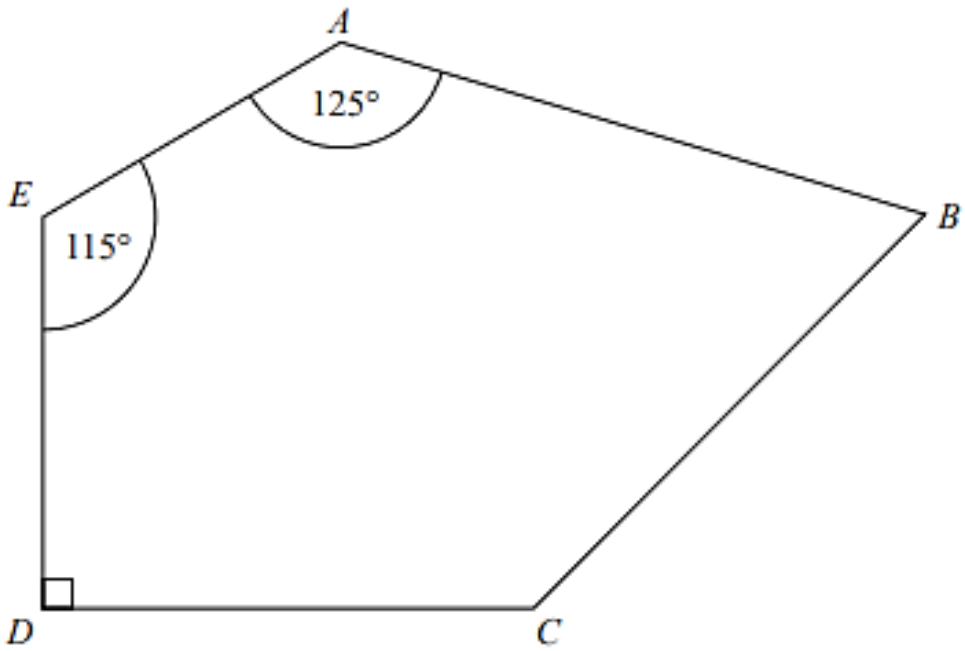
Show your working

Let angle ADC = x
So angle BCD = x
Angles in a quadrilateral add up to 360º
23º + 56º + x + x = 360º
2x = 281º
so x = angle BCD = 140.5º

Edexcel : F : 2018: P3

(5 marks)

26 *ABCDE* is a pentagon.



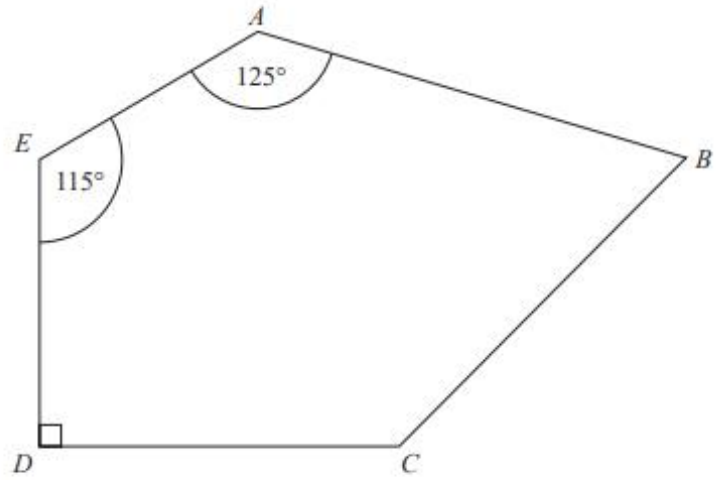
Angle $BCD = 2 \times$ angle ABC

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

Edexcel : F : 2018: P3: Q26

(5 marks)

26 *ABCDE* is a pentagon.



Angle *BCD* = 2 × angle *ABC*

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

Solution

Let angle ABC = x

So angle BCD = 2x

Angles in a pentagon add up to 540º

115º + 125º + 90º + x + 2x = 540º

3x = 210º

so x = 70º

So 2x = angle BCD = 140º

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