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Final version

Variation using a Maths GCSE question

Year 11 (Foundation)

Overview

This document contains...

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

Points to consider when using this resource

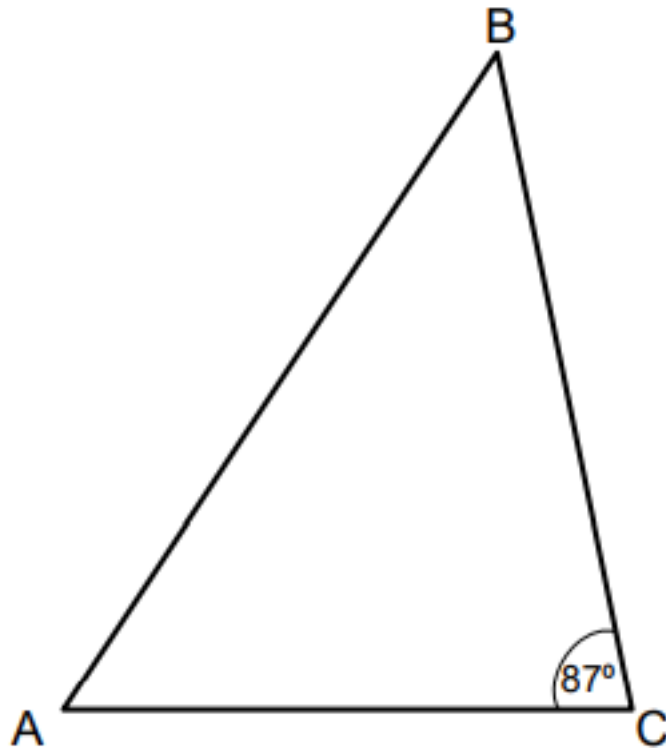
Each variation of the exam question should be considered as part of a learning journey. Teachers may wish to consider models and images to support students to access the problems.

Year 11 F: variation: Edexcel 2018 P3 Q26

Missing angles in polygons

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

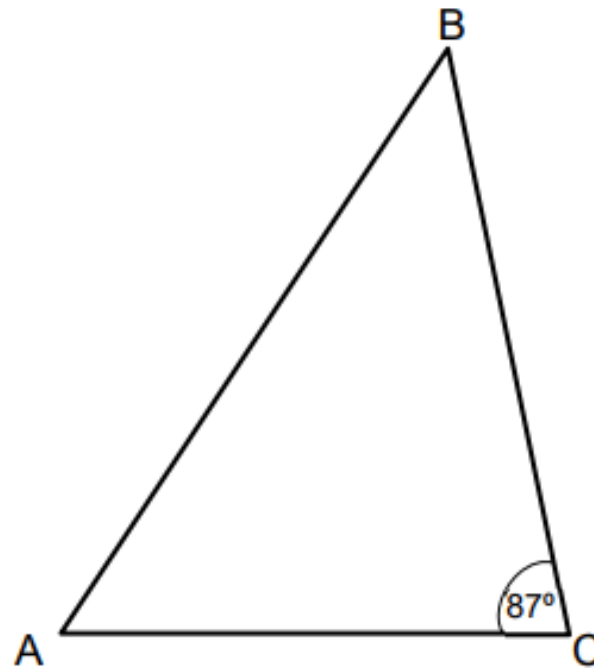
angle ACB = 87°

angle BAC = 2 x angle ABC

Work out the size of angle BAC

Show your working

Solution



ABC is a scalene triangle

angle ACB = 87°

angle BAC = 2 x angle ABC

Work out the size of angle BAC

Show your working

Let angle ABC = x

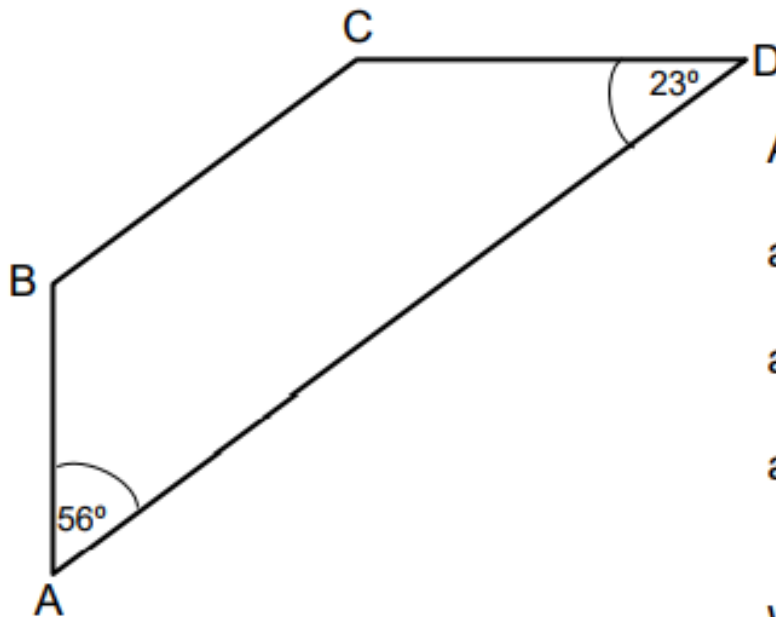
So angle BAC = $2x$

Angles in a triangle add up to 180°

$$87^\circ + x + 2x = 180^\circ$$

$$3x = 93^\circ$$

$$x = 31^\circ \text{ so } 2x = \text{angle BAC} = 2x = 62^\circ$$



ABCD is a quadrilateral

angle ADC = 23°

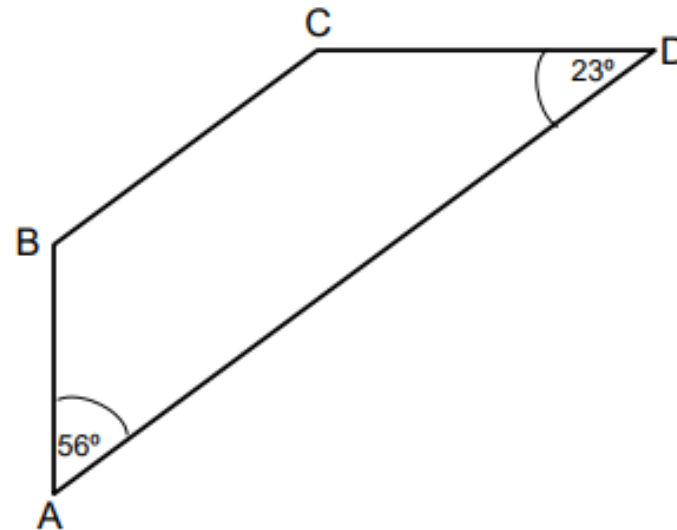
angle BAD = 56°

angle ABC = angle BCD

Work out the size of angle BCD

Show your working

Solution



ABCD is a quadrilateral

angle ADC = 23°

angle BAD = 56°

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 360°

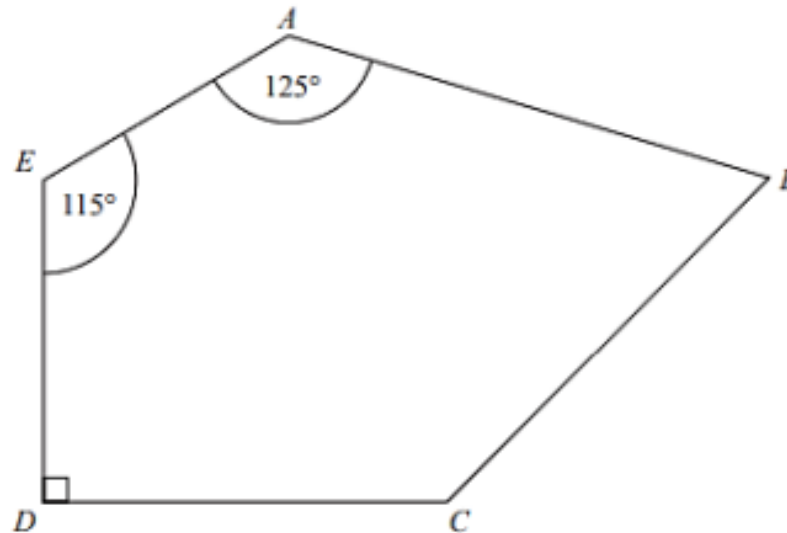
$$23^\circ + 56^\circ + x + x = 360^\circ$$

$$2x = 281^\circ$$

$$\text{so } x = \text{angle BCD} = 140.5^\circ$$

Edexcel : F : 2018: P3 (5 marks)

26 $ABCDE$ is a pentagon.



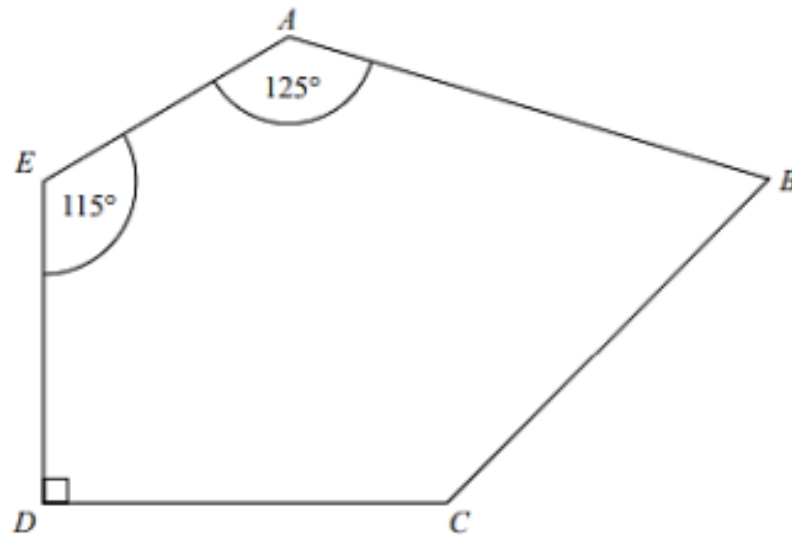
Angle $BCD = 2 \times$ angle ABC

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

Edexcel : F : 2018: P3 (5 marks)

Solutions

26 *ABCDE* is a pentagon.



Angle $BCD = 2 \times$ angle ABC

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

Let angle $ABC = x$

So angle $BCD = 2x$

Angles in a pentagon add up to 540°

$$115^\circ + 125^\circ + 90^\circ + x + 2x = 540^\circ$$

$$3x = 210^\circ$$

$$\text{so } x = 70^\circ$$

$$\text{So } 2x = \text{angle } BCD = 140^\circ$$

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