

Sine & Cosine Rule (Mixed)

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments



You *can* use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

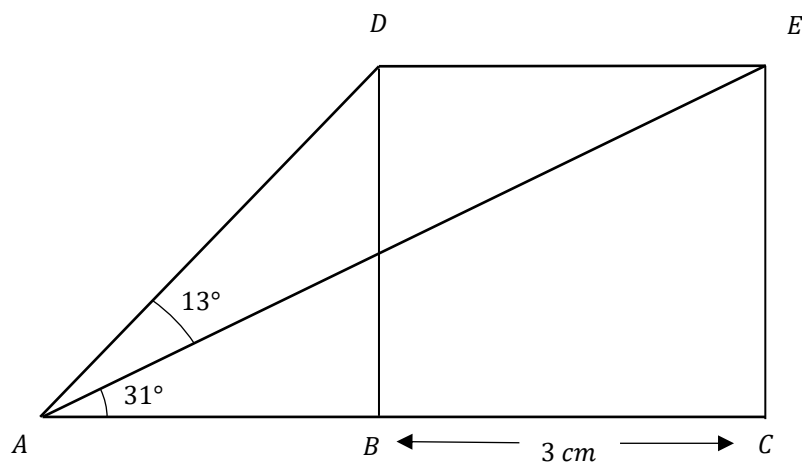
1 Line ABC is parallel to line DE .

(Level 7)

$$\angle DAE = 13^\circ$$

$$\angle EAC = 31^\circ$$

$$DE = BC = 3 \text{ cm}$$



Not drawn
accurately

Find the length of EC

Give your answer to the nearest cm

[5 marks]

Answer _____ cm

- 2 Two triangles CDB and ADB are joined along DB , shown below.

(Level 7)

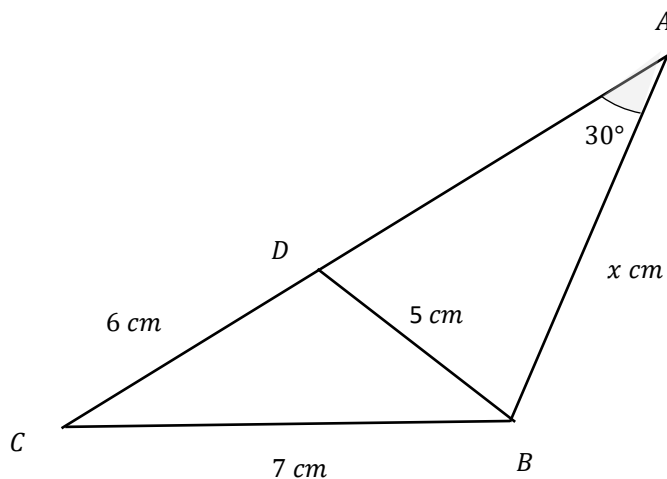
$$DC = 6 \text{ cm}$$

$$CB = 7 \text{ cm}$$

$$DB = 5 \text{ cm}$$

$$BA = x \text{ cm}$$

$$\angle DAB = 30^\circ$$



Not drawn accurately

Find x in the following diagram.

Give your answer to 1 decimal place.

[5 marks]

Answer _____ cm

Turn over for next question

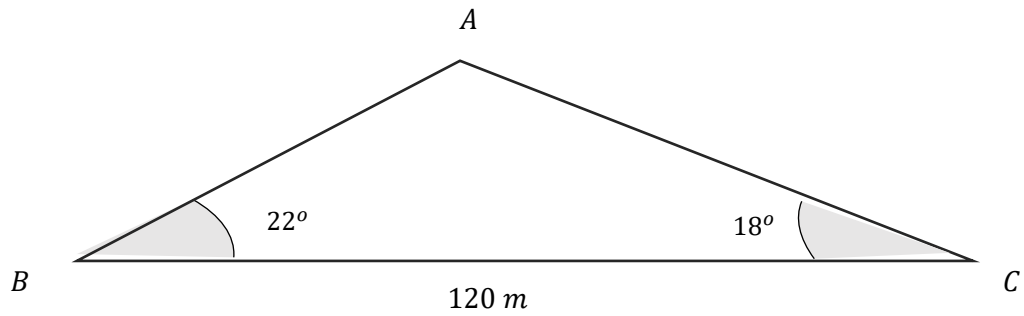
Turn over ►

3

The tallest point of a building is given the letter A , shown below.

(Level 7)

Points B and C are horizontal to the ground such that angle ABC is 22° and ACB is 18° , shown below.



Given that the distance $BC = 120\text{ m}$, calculate the height of the building to the nearest metre.

[4 marks]

Answer _____ m

Turn over for next question

4 Allan is building an enclosure in his garden.

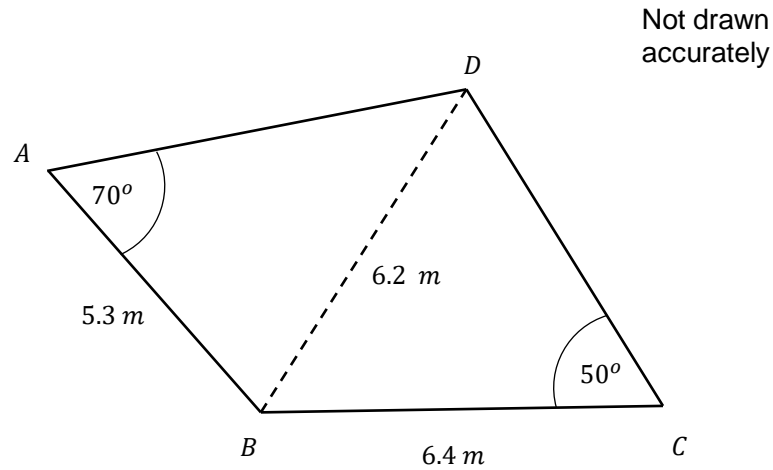
(Level 7)

It is in the shape of the quadrilateral below.

$$AB = 5.3 \text{ m}$$

$$BC = 6.4 \text{ m}$$

$$BD = 6.2 \text{ m}$$



Calculate the perimeter of the enclosure.

Give your answer to the nearest metre.

[5 marks]

Answer _____

Turn over for next question

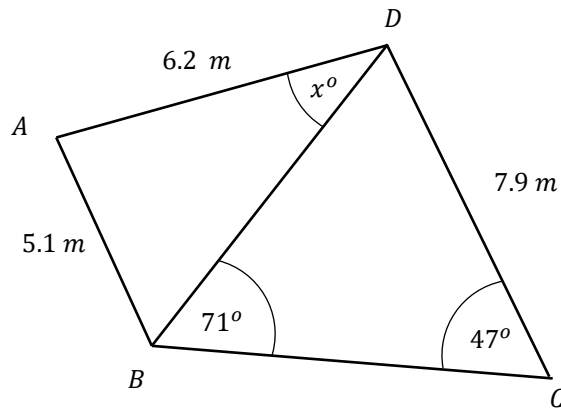
5 The quadrilateral $ABCD$, is made up of two triangle ABD and BCD

(Level 7)

$$AB = 5.1 \text{ m}$$

$$AD = 6.2 \text{ m}$$

$$CD = 7.9 \text{ m}$$



Not drawn accurately

Find the angle ADB , shown on the diagram above.

Give your answer to 2 decimal places.

[5 marks]

Answer _____

Turn over for next question

6 Sophia and Grace are travelling in their cars away from a crossroads at O shown below. (Level 8)

Sophia is traveling to D through point A .

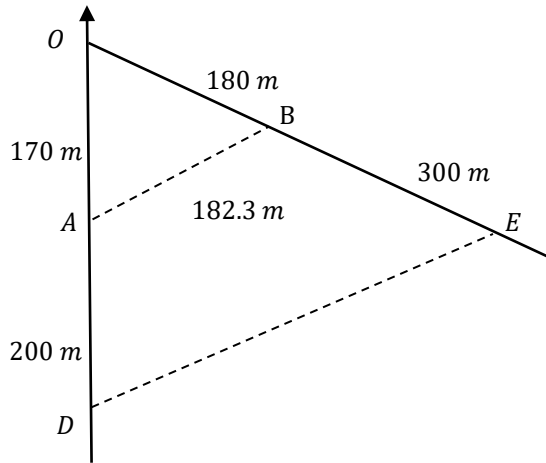
Grace is traveling to E , through point B

$AB = 182.3 \text{ m}$

$OA = 170 \text{ m}$

$AD = 200 \text{ m}$

$BE = 300 \text{ m}$



Not drawn accurately

6(a) Find the distance DE .

Give your answer to the nearest metre.

[4 marks]

Answer _____

Question continues on the next page

Turn over ►

- 6(b)** Find the bearing of E from D.
Give your answer to the nearest degree.

[3 marks]

Answer _____



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