Maths.scot

National 5 Maths
Sine and Cosine Rules
(without Bearings)

SQA past paper and specimen paper questions and answers by topic

Visit Maths.scot for full worked solutions to each of these questions.

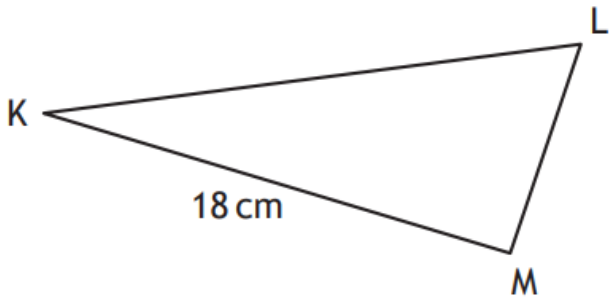
National 5 Maths
SQA 2014 Paper 1
Question 5

National 5 Maths
Maths.scot

In triangle KLM

- KM = 18 centimetres
- sin K = 0·4
- sin L = 0·9

Calculate the length of LM. **3**

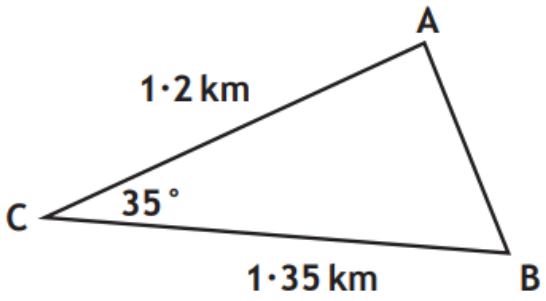


Answer:

8 cm

National 5 Maths
SQA 2015 Paper 2
Question 3

Triangle ABC is shown below.



Calculate the length of AB. **3**

Answer:

0.78 km

National 5 Maths
SQA 2016 Paper 2
Question 8

National 5 Maths
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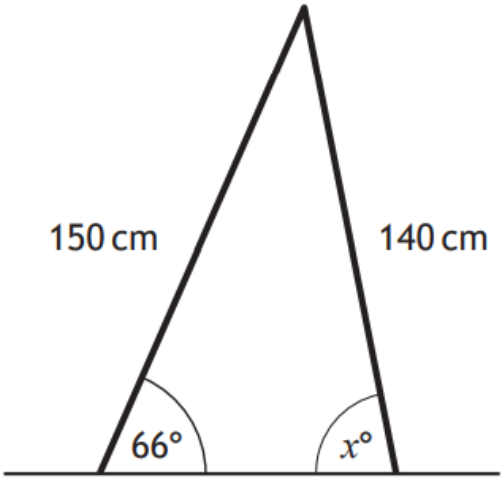
A set of stepladders has legs 150 centimetres and 140 centimetres long.

When the stepladder is fully open, the angle between the longer leg and the ground is 66°.



Calculate $x°$, the size of the angle between the shorter leg and the ground. **3**

Answer:

78.2°

National 5 Maths
SQA 2016 Paper 2
Question 16

National 5 Maths
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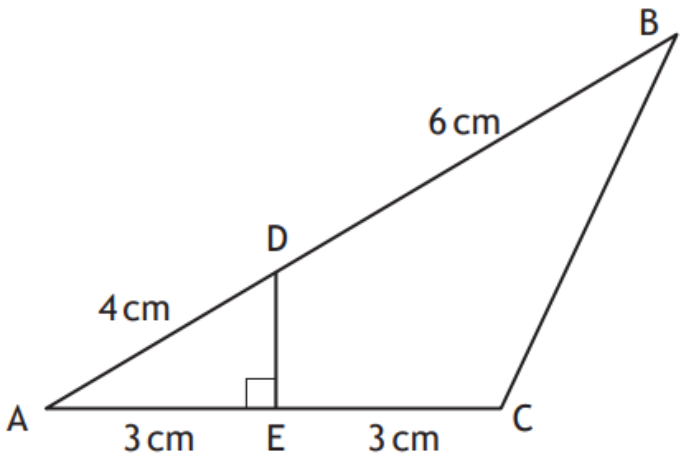
In the diagram below:

- DE is perpendicular to AC.
- AD = 4 centimetres.
- DB = 6 centimetres.
- AE = EC = 3 centimetres.



Calculate the length of BC.

Give your answer correct to one decimal place. **4**

Answer:

6.8 cm

National 5 Maths
SQA 2017 Specimen
Paper 2 Question 5

National 5 Maths
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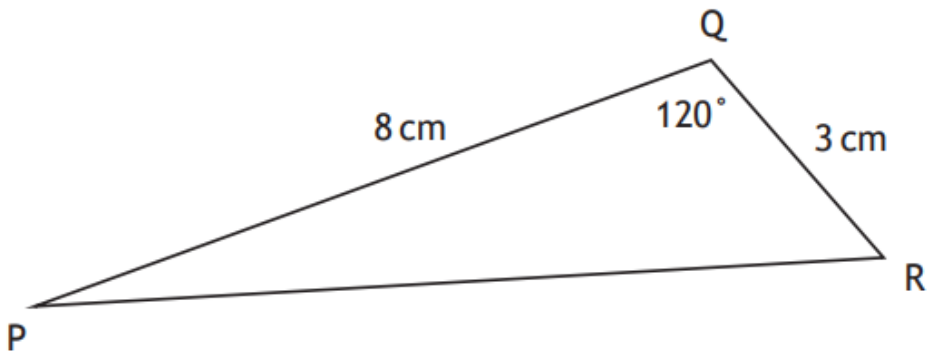
In triangle PQR, PQ = 8 centimetres, QR = 3 centimetres and angle PQR = 120°.



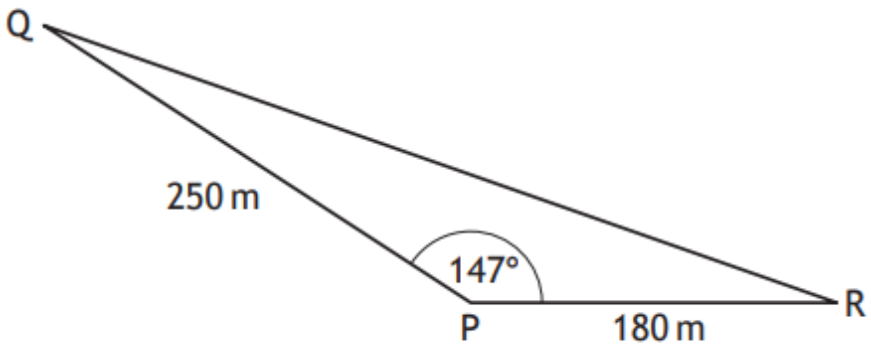
Calculate the length of PR. **3**

Answer:

9.8 cm

National 5 Maths
SQA 2017 Paper 2
Question 3

A piece of land is in the shape of a triangle as shown.



- PQ = 250 metres
- PR = 180 metres
- angle QPR = 147°

The owner wishes to build a fence along the side QR.

Calculate the length of the fence. **3**

Answer:

412.8 metres

National 5 Maths
SQA 2018 Paper 1
Question 10

National 5 Maths
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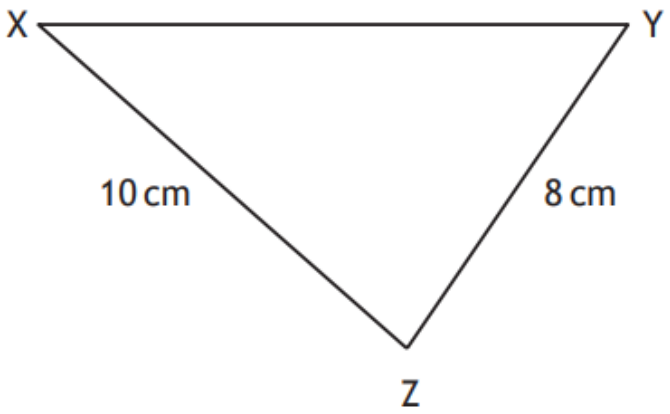
In triangle XYZ:

- XZ = 10 centimetres
- YZ = 8 centimetres
- $\cos Z = \frac{1}{8}$.



Calculate the length of XY. **3**

Answer:

12 cm

National 5 Maths
SQA 2018 Paper 2
Question 9

National 5 Maths
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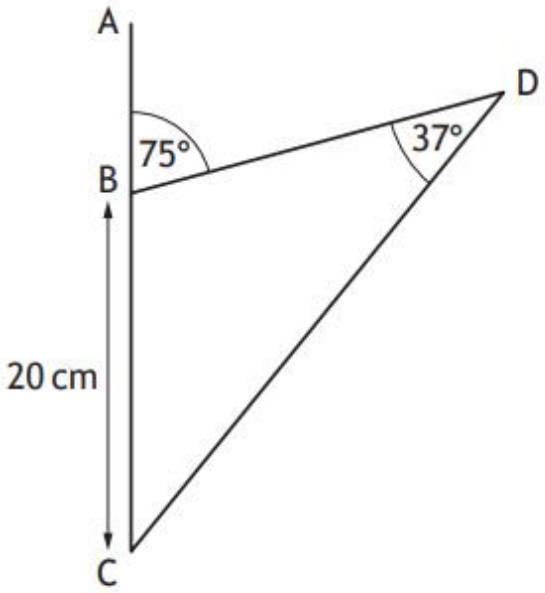
In this diagram:

- angle ABD = 75°
- angle BDC = 37°
- BC = 20 centimetres.



Calculate the length of DC. 3

Answer:

32.1 cm

National 5 Maths
SQA 2019 Paper 2
Question 7

National 5 Maths
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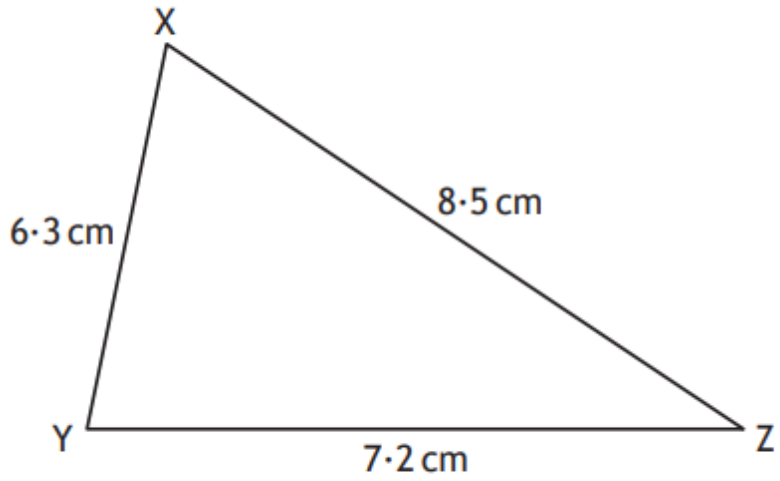
Triangle XYZ is shown below.



Calculate the size of the smallest angle in triangle XYZ. **3**

Answer:

46.4°

National 5 Maths
SQA 2019 Paper 2
Question 19

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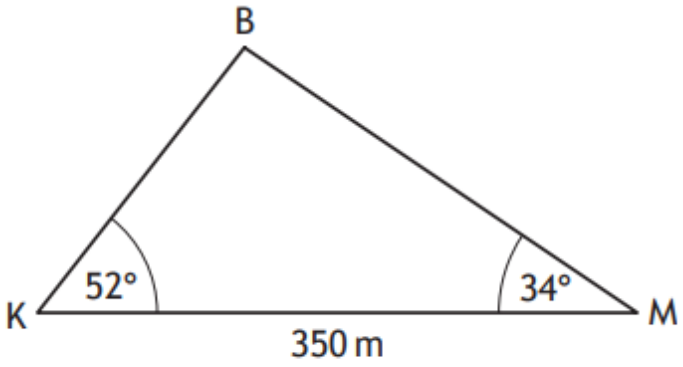
Katy and Mona are looking up at a hot-air balloon.

In the diagram below, K, M and B represent the positions of Katy, Mona and the balloon respectively.



- The angle of elevation of the balloon from Katy is 52°
- The angle of elevation of the balloon from Mona is 34°
- Katy and Mona are 350 metres apart on level ground

Calculate the height of the hot-air balloon above the ground. **5**

Answer:

154.6 m

National 5 Maths
SQA 2021 Paper 2
Question 4

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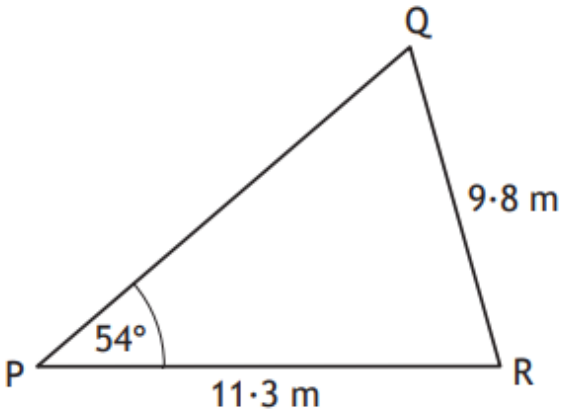
In triangle PQR

- PR = 11·3 metres
- QR = 9·8 metres
- angle QPR = 54°.



Calculate the size of acute angle PQR. 3

Answer:

68.9°

National 5 Maths
SQA 2022 Paper 1
Question 9

National 5 Maths
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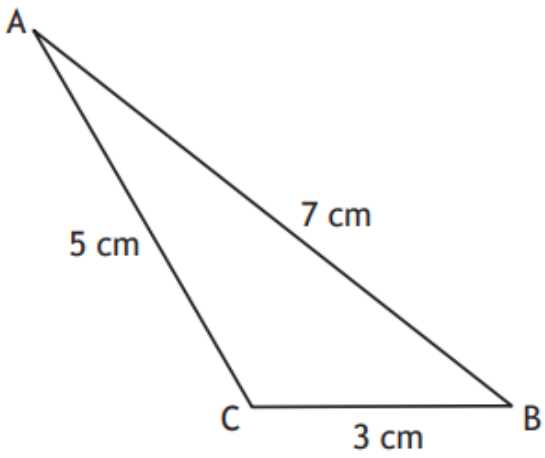
The diagram shows triangle ABC.



- AB = 7 centimetres
- BC = 3 centimetres
- AC = 5 centimetres

Calculate the value of cosB.
Give your answer in its simplest form. 2

Answer:

$\frac{11}{14}$

National 5 Maths
SQA 2022 Paper 2
Question 14

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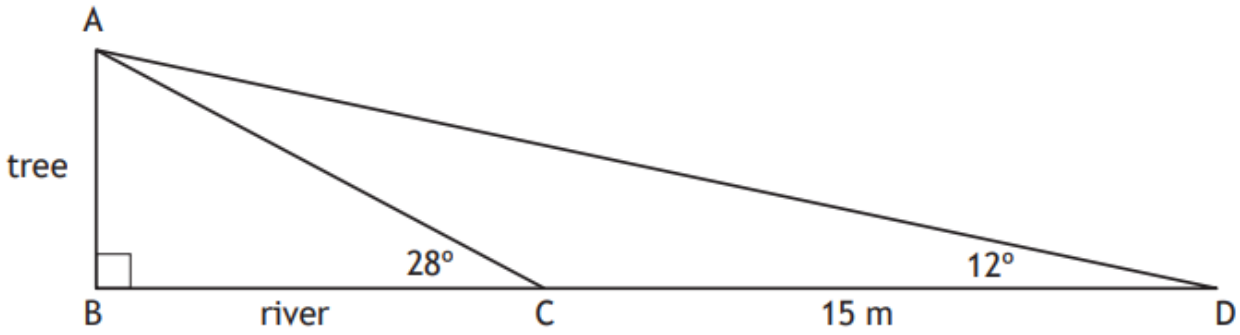
The width of a river is represented by BC in the diagram below.

AB represents a tree on the river bank.



- From C, the angle of elevation to A is 28°.
- From D, the angle of elevation to A is 12°.
- The distance from C to D is 15 metres.
- BCD is a straight line.

Calculate BC, the width of the river. **5**

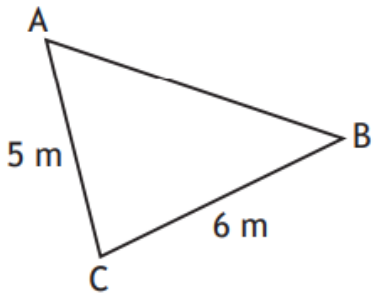
Answer:

9.99 m

National 5 Maths
SQA 2023 Paper 1
Question 6

In triangle ABC:

- AC = 5 metres
- BC = 6 metres
- $\cos C = \frac{1}{5}$.



Calculate the length of AB. **3**

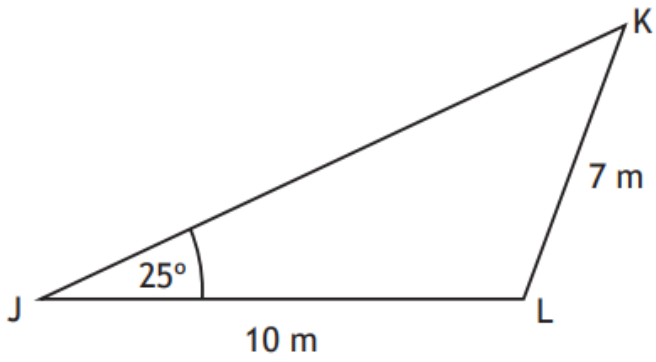
Answer:

7 m

National 5 Maths
SQA 2023 Paper 2
Question 4

The diagram shows triangle JKL.

- Angle KJL = 25°
- JL = 10 metres
- KL = 7 metres



Calculate the size of angle JKL. **3**

Answer:

37.1°

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SQA 2024 Paper 2
Question 3

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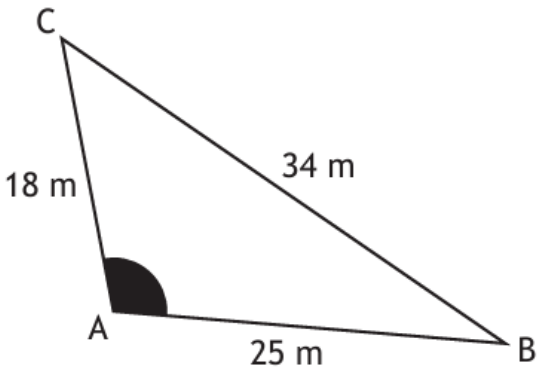
In triangle ABC:

- AB = 25 metres
- AC = 18 metres
- BC = 34 metres.



Calculate the size of the shaded angle at A. **3**

Answer:

103.3° (rounded)

National 5 Maths
SQA 2024 Paper 2
Question 13

National 5 Maths
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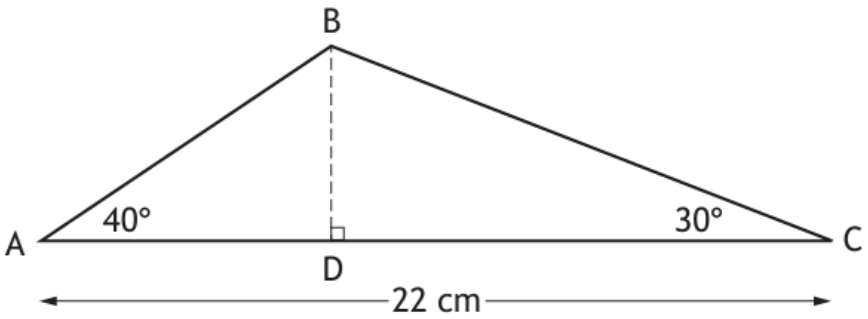
In triangle ABC:



- AC = 22 centimetres
- angle BAC = 40°
- angle BCA = 30°
- BD is perpendicular to AC.

Calculate the length of BD. **5**

Answer:

7.5 cm