



National 5 Maths

Sine and Cosine Rules

(without Bearings)

SQA past paper and specimen paper
questions and answers by topic

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Visit [Maths.scot](https://www.maths.scot) for full worked solutions to each of these questions.

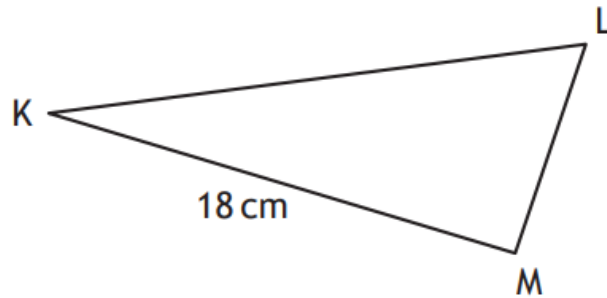


National 5 Maths
SQA 2014 Paper 1
Question 5

In triangle KLM

- $KM = 18$ centimetres
- $\sin K = 0.4$
- $\sin L = 0.9$

Calculate the length of LM.



3

Answer:

8 cm

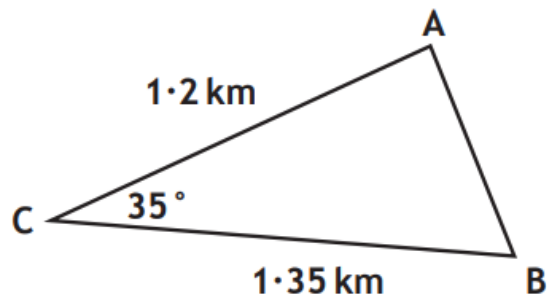
National 5 Maths
SQA 2015 Paper 2
Question 3

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Triangle ABC is shown below.



Calculate the length of AB.

3

Answer:

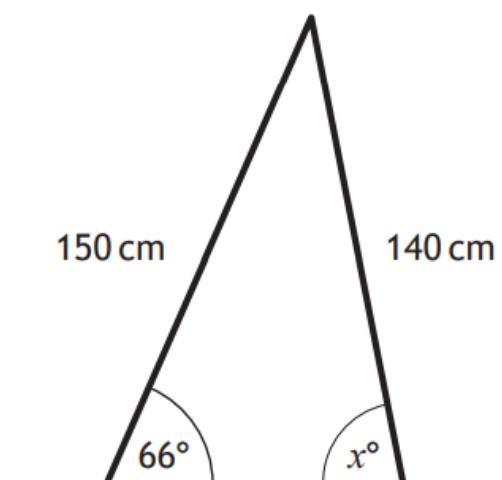
0.78 km



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.

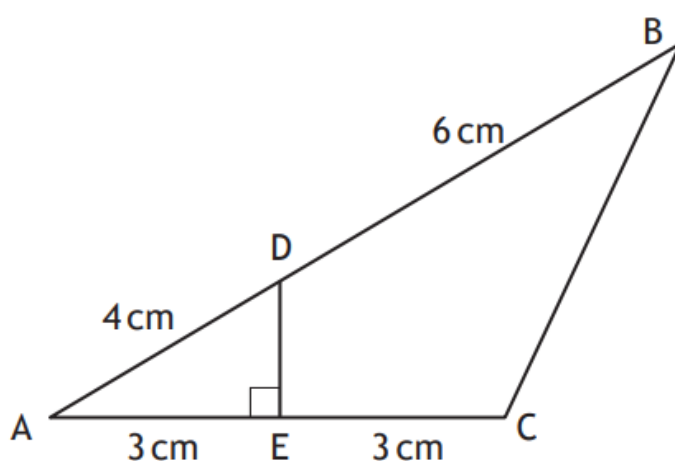
3

Answer:

78.2°

In the diagram below:

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



Calculate the length of BC.

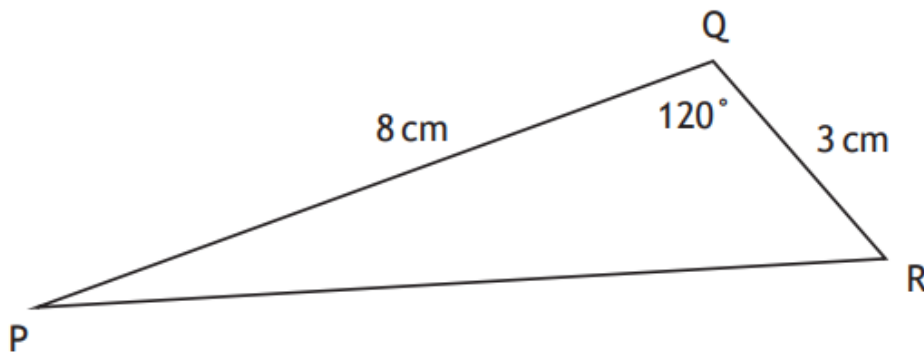
Give your answer correct to one decimal place.

4

Answer:

6.8 cm

In triangle PQR, $PQ = 8$ centimetres, $QR = 3$ centimetres and angle $PQR = 120^\circ$.



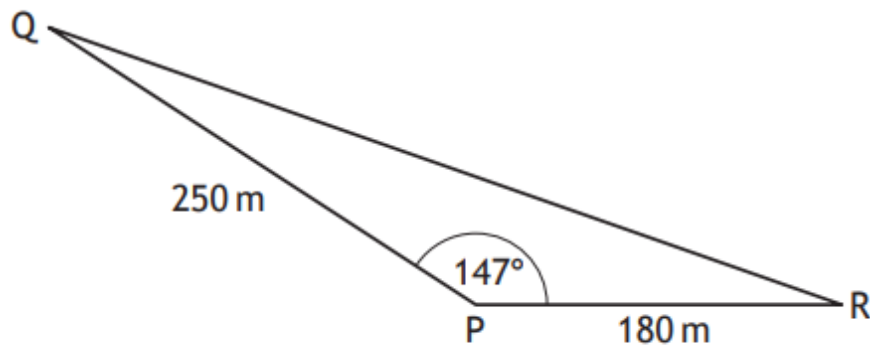
Calculate the length of PR.

3

Answer:

9.8 cm

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



- $PQ = 250$ metres
- $PR = 180$ metres
- $\text{angle } QPR = 147^\circ$

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

Calculate the length of the fence.

3

Answer:

412.8 metres

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SQA 2018 Paper 1
Question 10

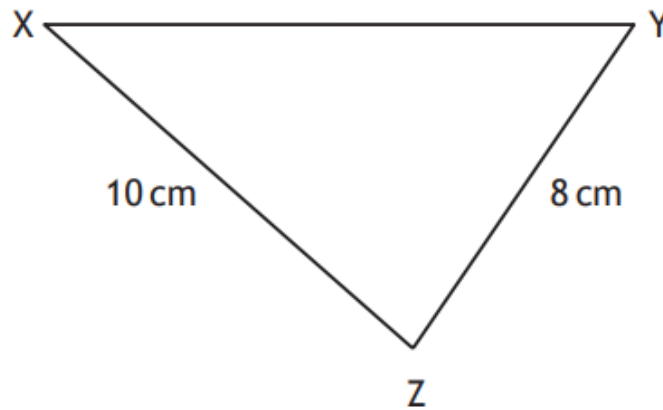
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In triangle XYZ:

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



Calculate the length of XY.

3

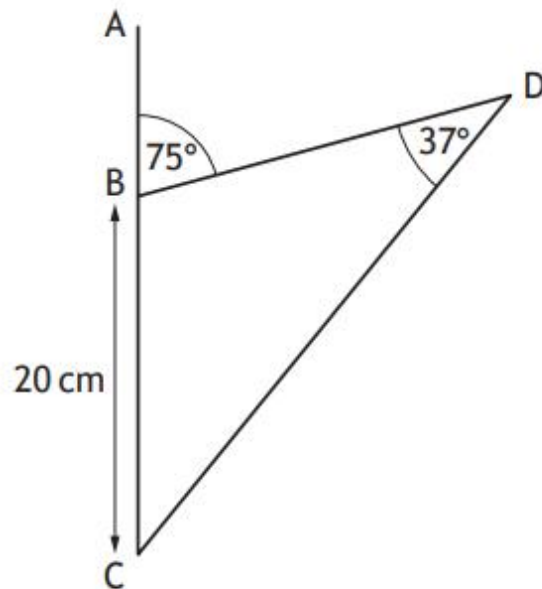
Answer:

12 cm

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SQA 2018 Paper 2
Question 9

In this diagram:

- angle $ABD = 75^\circ$
- angle $BDC = 37^\circ$
- $BC = 20$ centimetres.



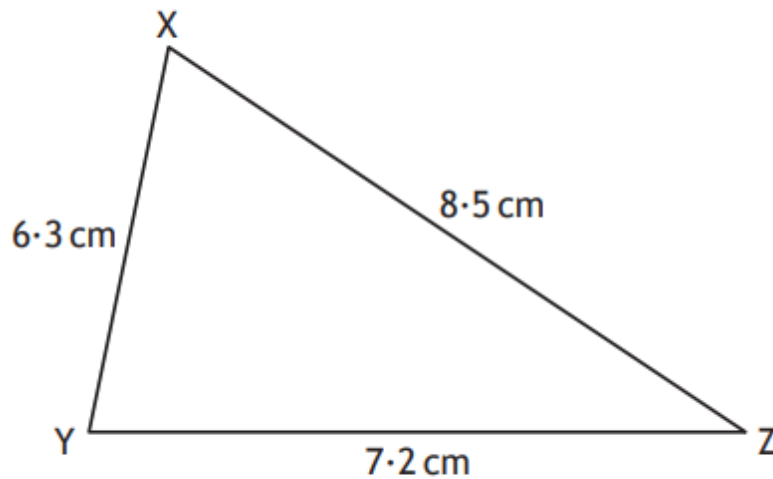
Calculate the length of DC.

3

Answer:

32.1 cm

Triangle XYZ is shown below.



Calculate the size of the smallest angle in triangle XYZ.

3

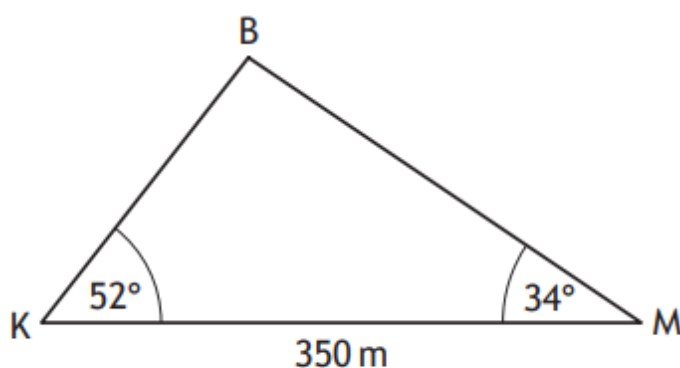
Answer:

46.4°



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

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SQA 2021 Paper 2
Question 4

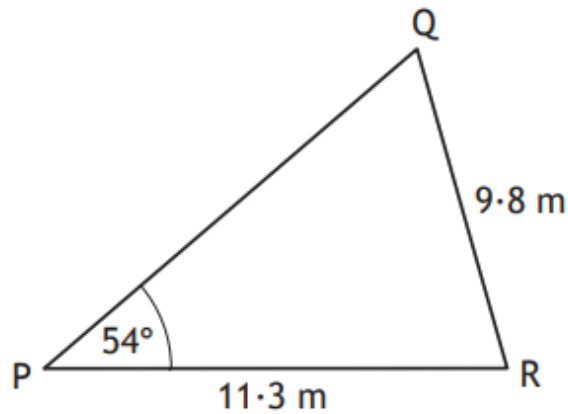
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In triangle PQR

- $PR = 11.3$ metres
- $QR = 9.8$ metres
- angle $QPR = 54^\circ$.



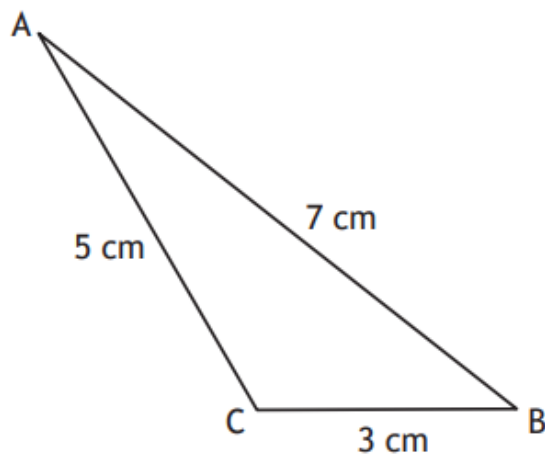
Calculate the size of acute angle PQR.

3

Answer:

68.9°

The diagram shows triangle ABC.



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

Calculate the value of $\cos B$.

Give your answer in its simplest form.

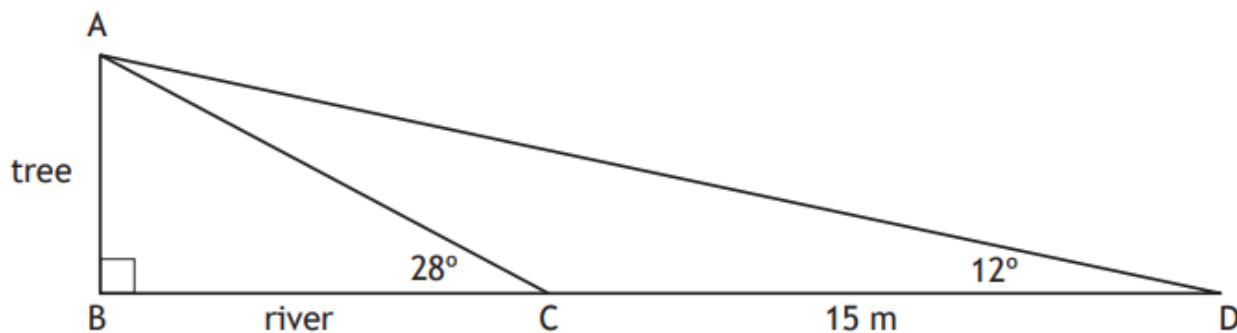
2

Answer:

$$\frac{11}{14}$$

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SQA 2022 Paper 2
Question 14

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

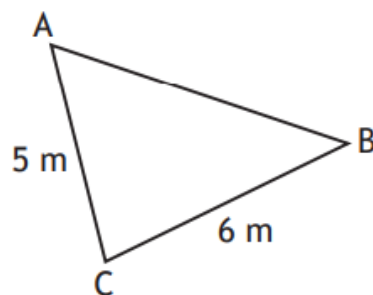
Answer:

9.99 m

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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.

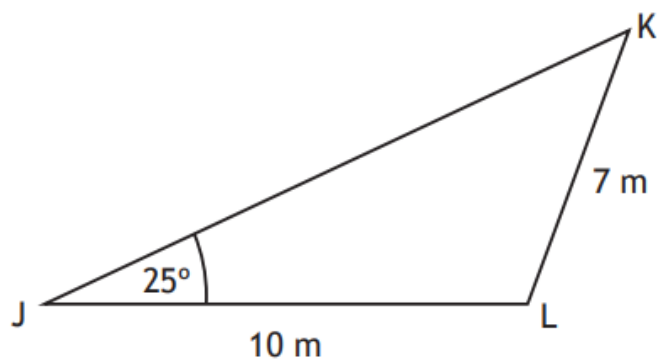
3

Answer:

7 m

The diagram shows triangle JKL.

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



Calculate the size of angle JKL.

3

Answer:

37.1°