



National 5 Maths Cosine Rule

SQA past paper and specimen paper
questions and answers by topic

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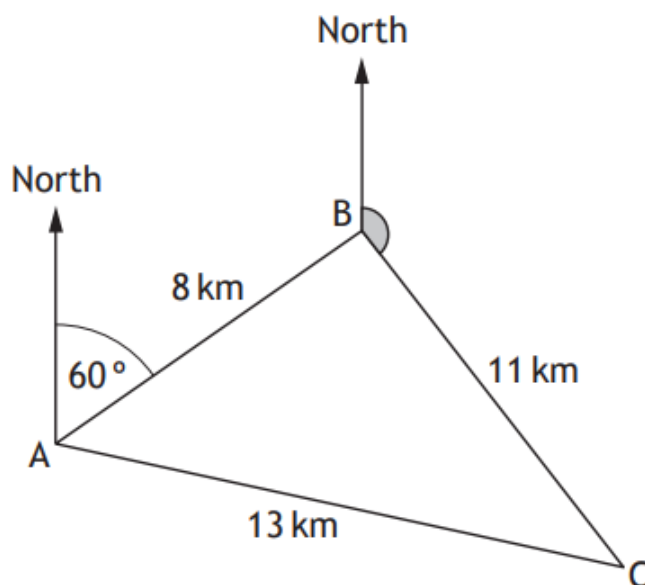
National 5 Maths
SQA 2014 Paper 2
Question 10

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In a race, boats sail round three buoys represented by A, B, and C in the diagram below.



B is 8 kilometres from A on a bearing of 060° .

C is 11 kilometres from B.

A is 13 kilometres from C.

- (a) Calculate the size of angle ABC. 3
- (b) Hence find the size of the shaded angle. 2

Answers:

- (a) 84.8°
(b) 155.2°

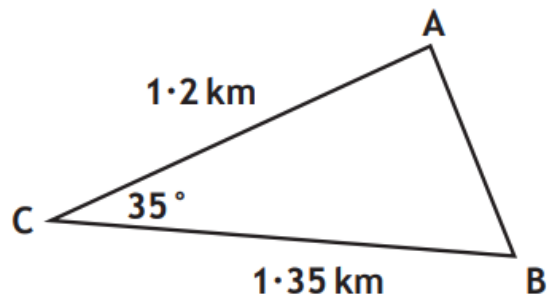
National 5 Maths
SQA 2015 Paper 2
Question 3

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Triangle ABC is shown below.



Calculate the length of AB.

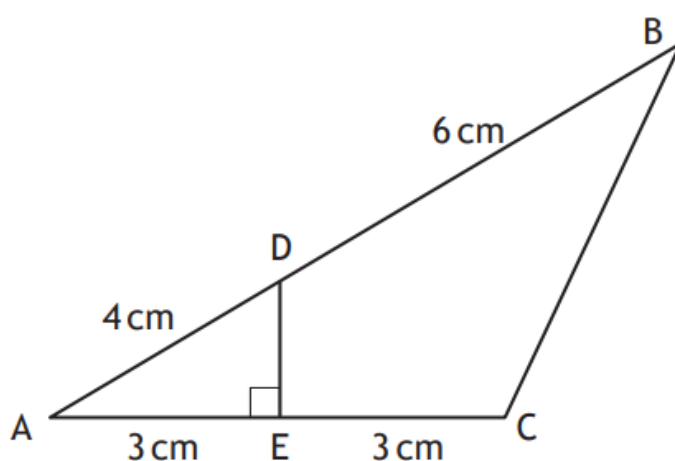
3

Answer:

0.78 km

In the diagram below:

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



Calculate the length of BC.

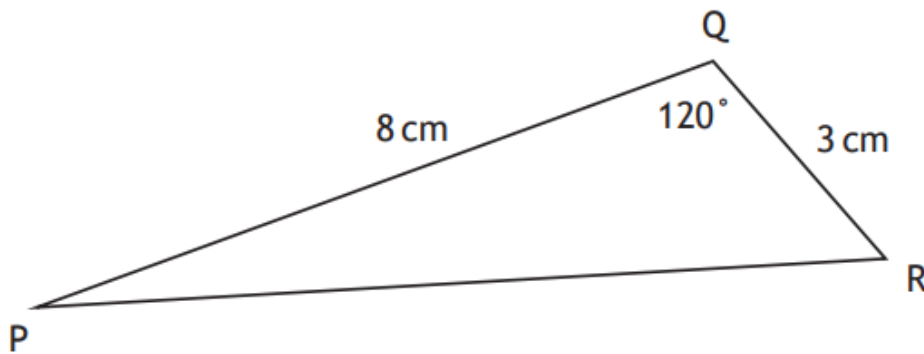
Give your answer correct to one decimal place.

4

Answer:

6.8 cm

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



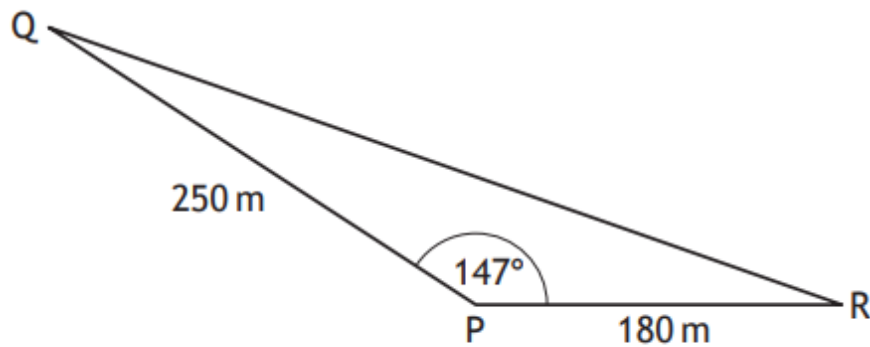
Calculate the length of PR.

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

National 5 Maths
SQA 2018 Paper 1
Question 10

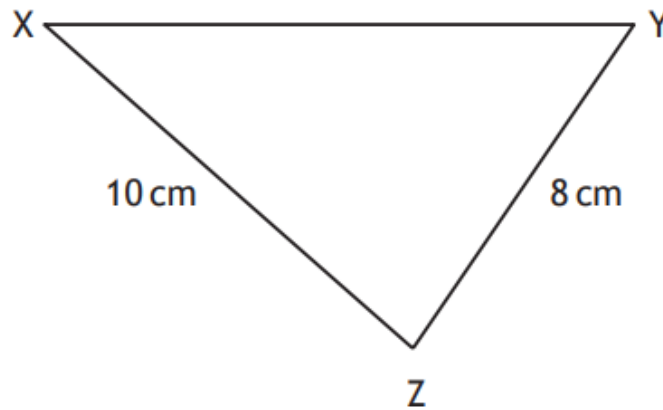
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In triangle XYZ:

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



Calculate the length of XY.

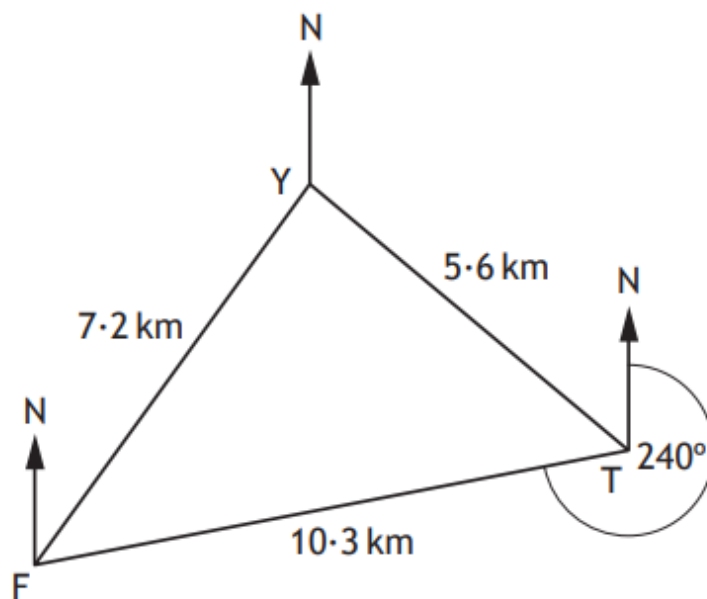
3

Answer:

12 cm

A ferry and a trawler receive a request for help from a stranded yacht.

On the diagram the points F, T and Y show the positions of the ferry, the trawler and the yacht respectively.



- FY is 7.2 kilometres.
- TY is 5.6 kilometres.
- FT is 10.3 kilometres.
- F is on a bearing of 240° from T.

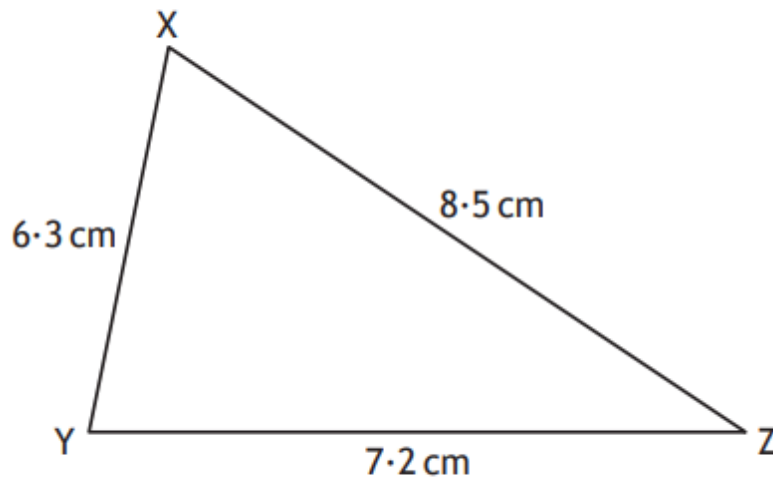
Calculate the bearing of the yacht from the trawler.

4

Answer:

282.1°

Triangle XYZ is shown below.



Calculate the size of the smallest angle in triangle XYZ.

3

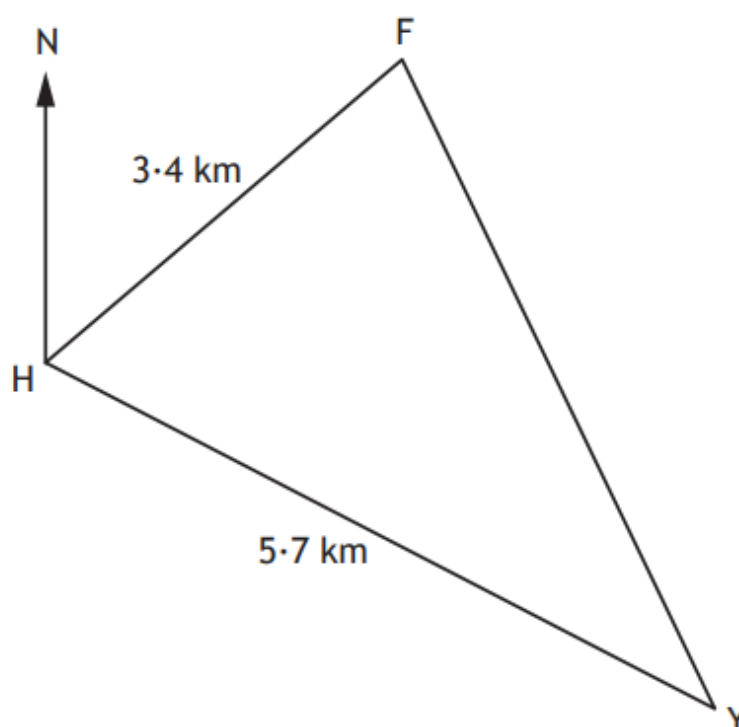
Answer:

46.4°

A fishing boat and a yacht left a harbour at the point H.

The fishing boat travelled 3.4 kilometres on a bearing of 047° to the point F.

The yacht travelled 5.7 kilometres on a bearing of 115° to the point Y.



Calculate the distance between the fishing boat at F and the yacht at Y.

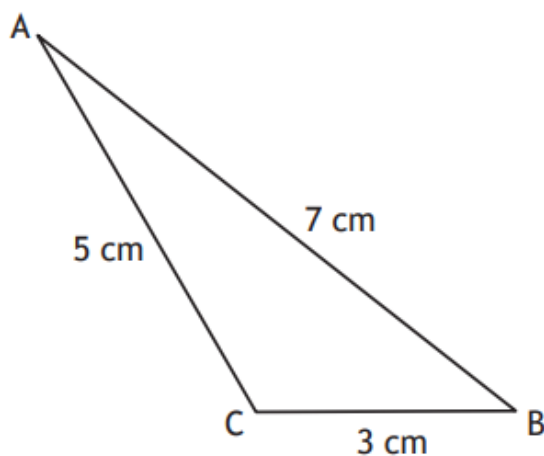
4

Answer:

5.4 km



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

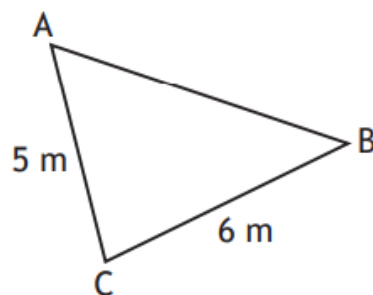
Answer:

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

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

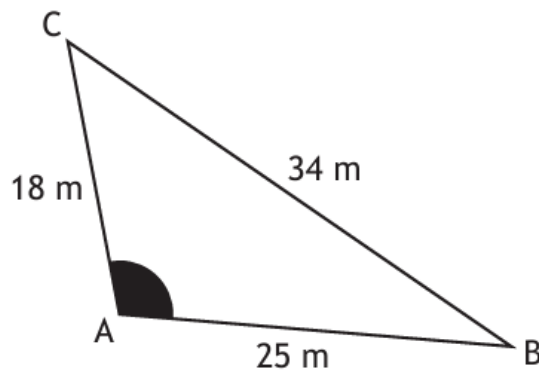
Answer:

7 m

National 5 Maths
SQA 2024 Paper 2
Question 3

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)