

Sine & Cosine Rules

N5 Maths Exam Questions

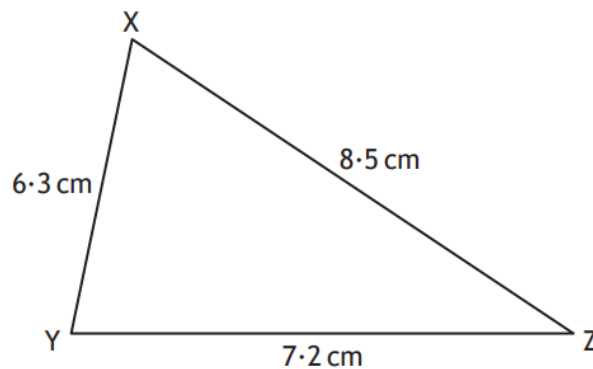
Sine rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine rule $a^2 = b^2 + c^2 - 2bc \cos A$ or $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$

Source: 2019 P2 Q7 N5 Maths

(1)

Triangle XYZ is shown below.



Calculate the size of the smallest angle in triangle XYZ.

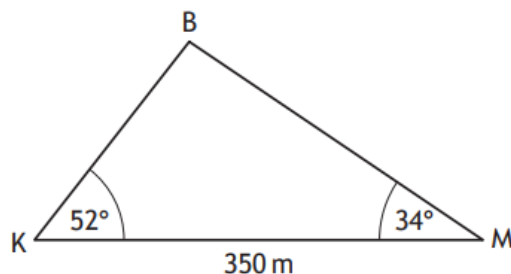
Answer: *Angle* = 46.406°

Source: 2019 P2 Q19 N5 Maths

(2)

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.

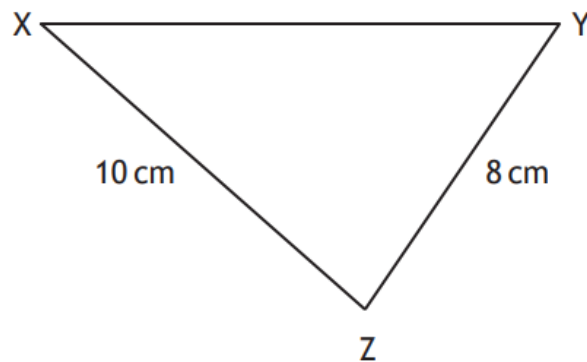
Answer: *Height* = 154.6 m

Source: 2018 P1 Q10 N5 Maths

(3)

In triangle XYZ:

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



Calculate the length of XY.

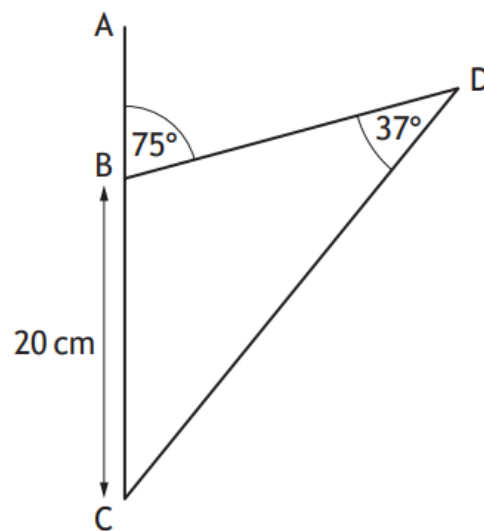
Answer: $Length\ XY = 12\ cm$

Source: 2018 P2 Q9 N5 Maths

(4)

In this diagram:

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



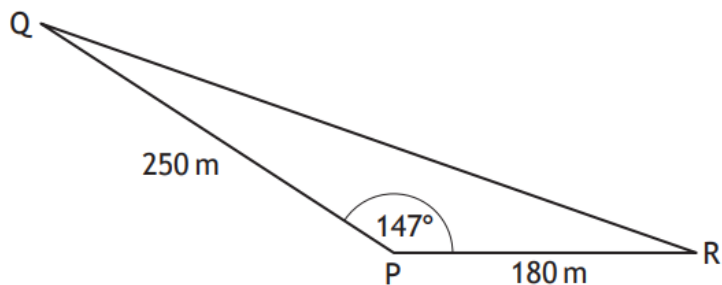
Calculate the length of DC.

Answer: $DC = 32.1\ cm$

Source: 2017 P2 Q3 N5 Maths

(5)

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.

Answer: *Length of fence = 413 metres*

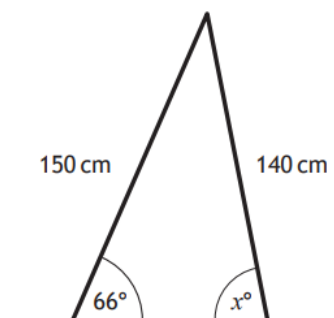
Source: 2016 P2 Q8 N5 Maths

(6)

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.

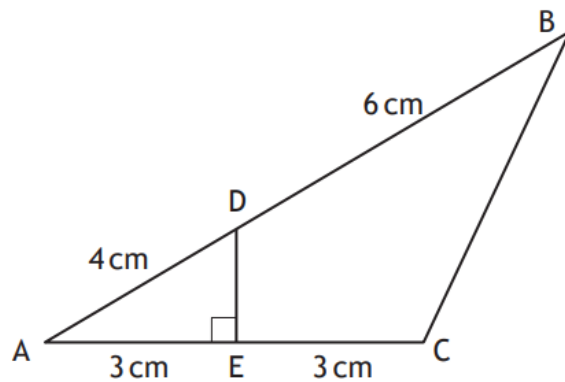
Answer: $x = 7.8^\circ$

Source: 2016 P2 Q16 N5 Maths

(7)

In the diagram below:

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



Calculate the length of BC.

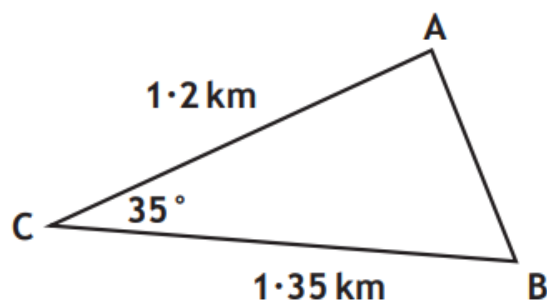
Give your answer correct to one decimal place.

Answer: $BC = 6.8 \text{ cm}$

Source: 2015 P2 Q3 N5 Maths

(8)

Triangle ABC is shown below.



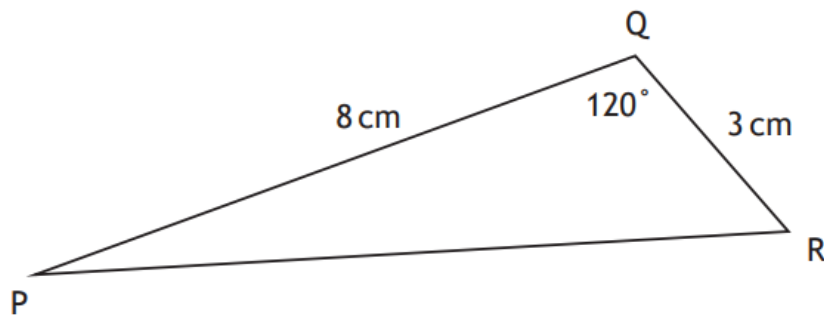
Calculate the length of AB.

Answer: $AB = 0.78 \text{ km}$

Source: Specimen P2 Q5 N5 Maths

(9)

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



Calculate the length of PR.

Answer: $PR = 9.8 \text{ cm}$

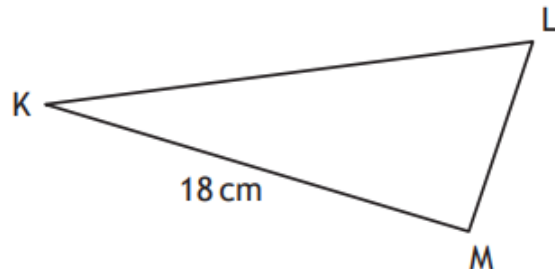
Source: 2014 P1 Q5 N5 Maths

(10)

In triangle KLM

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

Calculate the length of LM.



Answer: $LM = 8 \text{ cm}$