G258 Cosine rule

Q1.
The diagram shows triangle *LMN*.

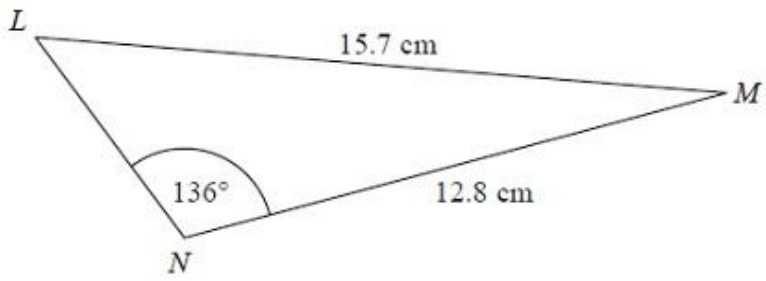


Diagram **NOT** accurately drawn

Calculate the length of *LN*.

Give your answer correct to 3 significant figures.

..... cm

(Total for Question is 5 marks)

Q2.

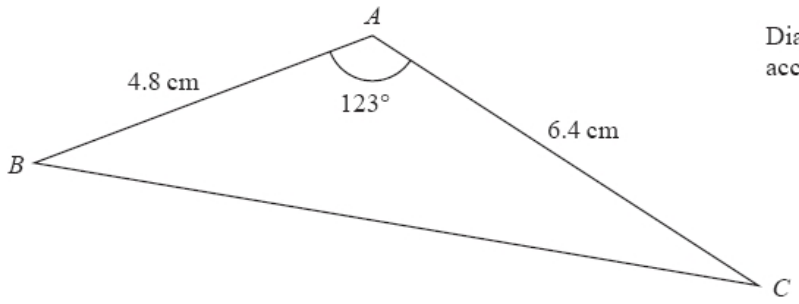


Diagram **NOT** accurately drawn

Calculate the length of *BC*.
Give your answer correct to 3 significant figures.

..... cm

(Total for question = 3 marks)

Q3.

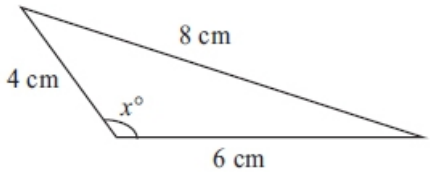


Diagram **NOT** accurately drawn

Calculate the value of *x*.
Give your answer correct to 1 decimal place.

x = ...

(Total for question is 3 marks)

Q4.

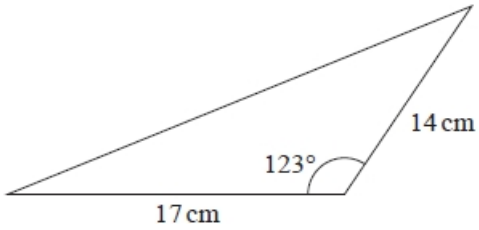


Diagram **NOT** accurately drawn

Calculate the perimeter of the triangle.
Give your answer correct to 1 decimal place.

..... cm

(Total for question = 4 marks)

Q5.

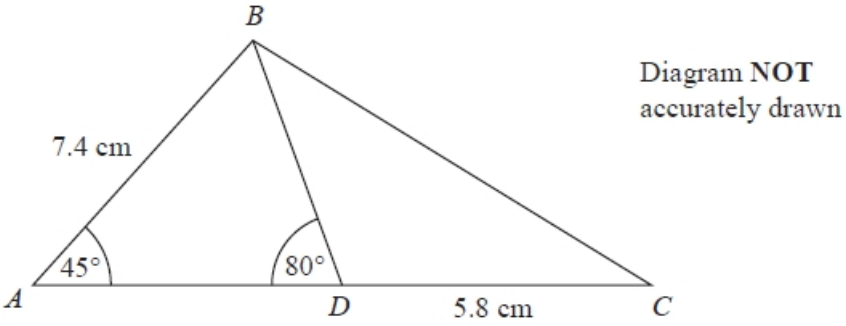


Diagram **NOT** accurately drawn

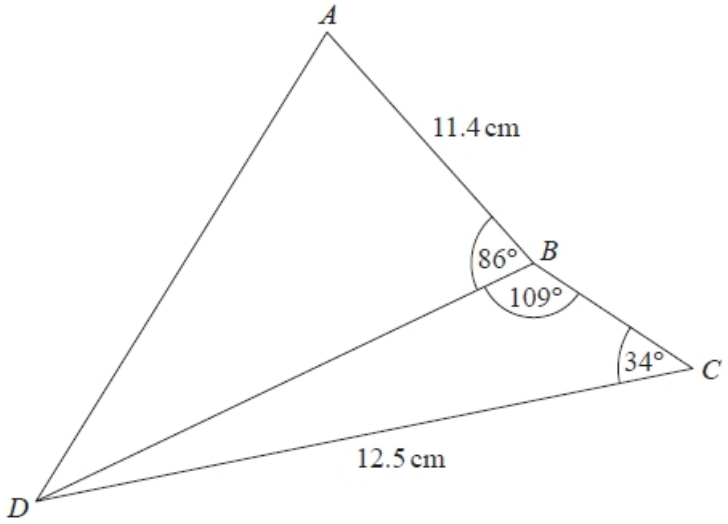
ABC is a triangle.
D is a point on *AC*.
Angle *BAD* = 45°
Angle *ADB* = 80°
AB = 7.4 cm
DC = 5.8 cm

Work out the length of *BC*.
Give your answer correct to 3 significant figures.

..... cm

(Total for question = 5 marks)

Q6.



Work out the length of *AD*.
Give your answer correct to 3 significant figures.

..... cm

(Total for question = 5 marks)

Q7.

ABCD is a quadrilateral.

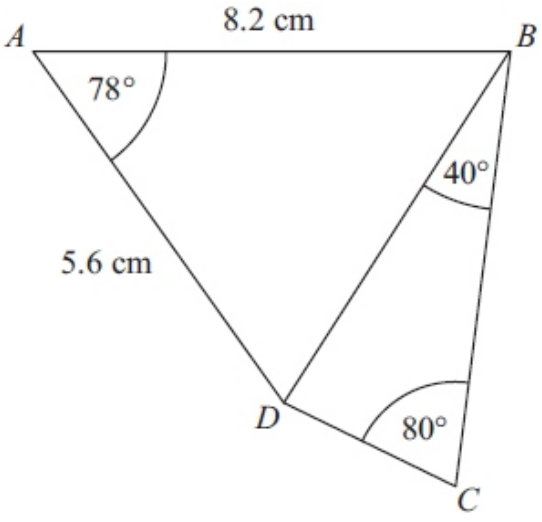


Diagram **NOT** accurately drawn

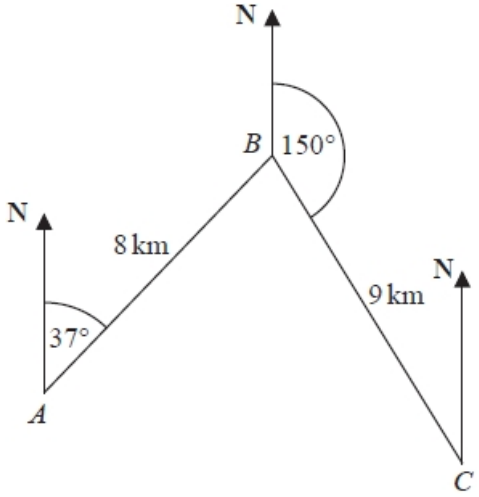
Work out the length of *DC*.
Give your answer correct to 3 significant figures.

. . . . . cm

(Total for Question is 6 marks)

Q8.

The diagram shows the positions of three towns, Acton (*A*), Barston (*B*) and Chorlton (*C*).



Barston is 8 km from Acton on a bearing of 037°
Chorlton is 9 km from Barston on a bearing of 150°

Find the bearing of Chorlton from Acton.
Give your answer correct to 1 decimal place.
You must show all your working.

..... °

(Total for question = 5 marks)

Q9.

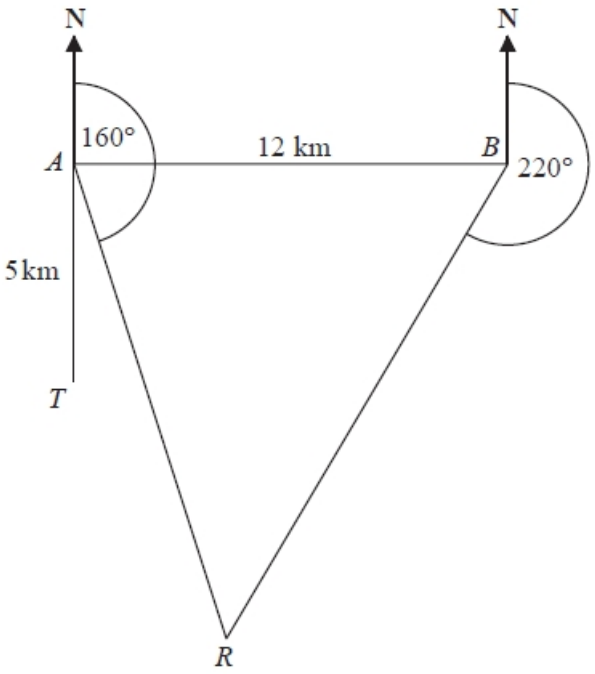


Diagram **NOT** accurately drawn

There is a coastguard station at point *A* and at point *B*.
B is due East of *A*.
The distance from *A* to *B* is 12 km.

There is a rowing boat at point *R*.
R is on a bearing of 160° from A. *R* is on a bearing of 220° from B.

There is a speedboat at point *T*.
T is 5 km due South of *A*.

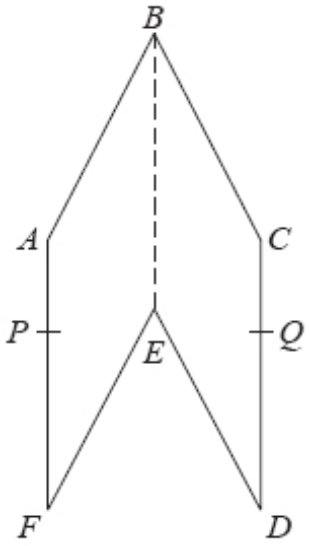
Work out the shortest distance from *T* to *R*. Give your answer correct to 1 decimal place.

.....km

(Total for question = 5 marks)

Q10.

The diagram shows a hexagon *ABCDEF*.



ABEF and *CBED* are congruent parallelograms where $AB = BC = x$ cm.
P is the point on *AF* and *Q* is the point on *CD* such that $BP = BQ = 10$ cm.

Given that angle $ABC = 30°$,

prove that $\cos PBQ = 1 - \frac{(2-\sqrt{3})}{200}x^2$

(Total for question = 5 marks)