G238 Sine and cosine rule, area of any triangle

Q1.

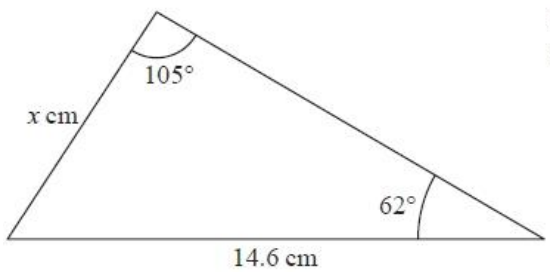


Diagram **NOT** accurately drawn

Work out the value of x.
Give your answer correct to 1 decimal place.

x = ...

(Total for question = 3 marks)

Q2.

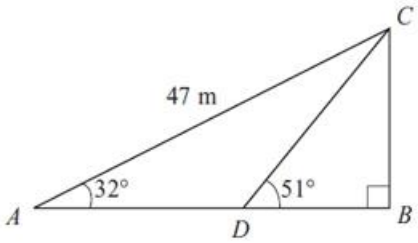


Diagram **NOT** accurately drawn

Triangle ABC is right-angled at B.
Angle BAC = 32°
AC = 47 m.
D is the point on AB such that angle BDC = 51°
Calculate the length of BD.
Give your answer correct to 3 significant figures.

..... m

(Total for question = 5 marks)

Q3.

A, *B* and *C* are three towns.

The bearing of *B* from *A* is 105°
The bearing of *C* from *B* is 230°

The distance of *C* from *A* is 180 km.
The distance of *C* from *B* is 95 km.

Calculate the distance of *B* from *A*.
Give your answer correct to 3 significant figures.

..... km

(Total for question = 5 marks)

Q4.

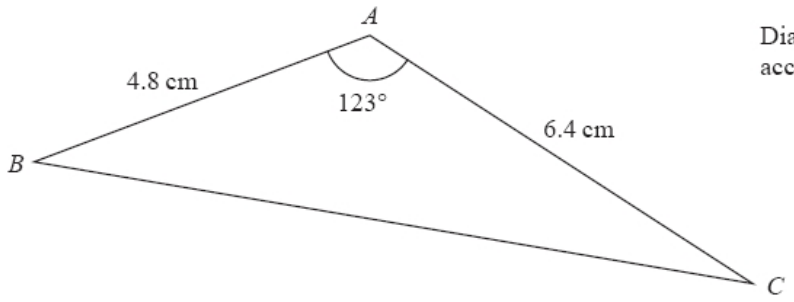


Diagram **NOT** accurately drawn

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

..... cm

(Total for question = 3 marks)

Q5.

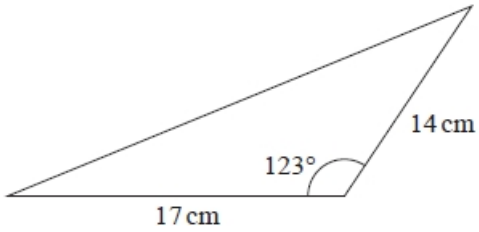


Diagram **NOT** accurately drawn

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

..... cm

(Total for question = 4 marks)

Q6.

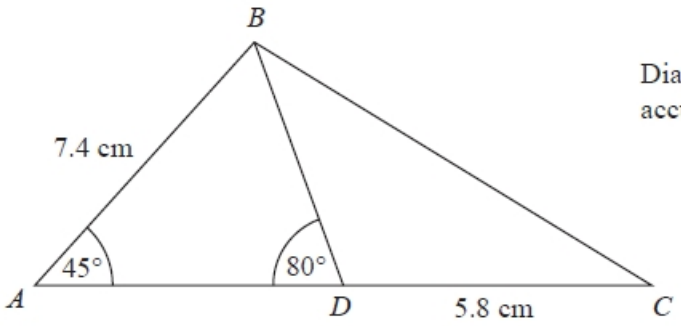


Diagram **NOT** accurately drawn

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)

Q7.

ABCD is a quadrilateral.

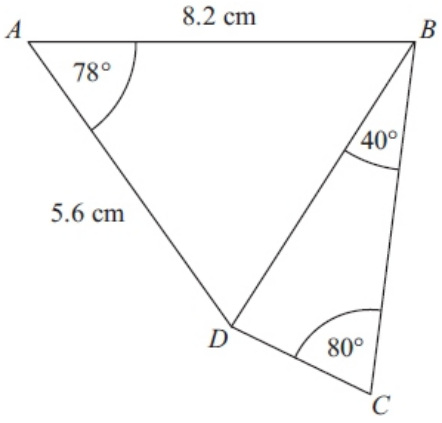


Diagram **NOT** accurately drawn

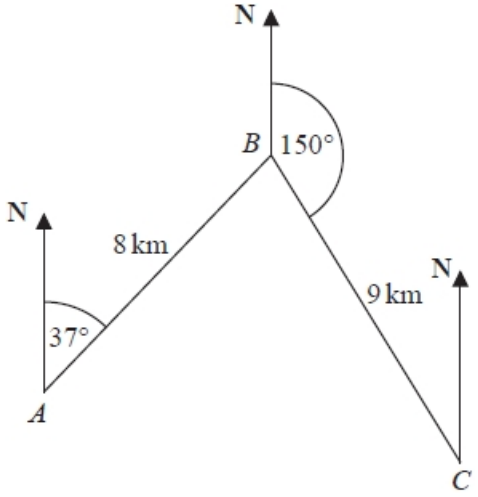
Work out the length of *DC*.
Give your answer correct to 3 significant figures.

. . . . . 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.

Here is a parallelogram.

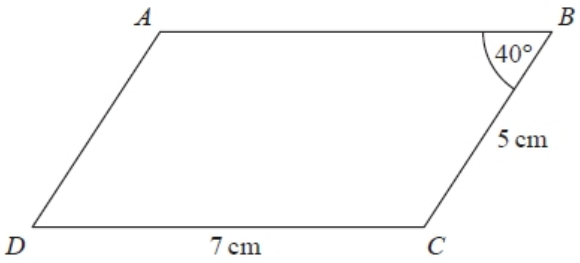


Diagram **NOT** accurately drawn

DC = 7 cm
CB = 5 cm
Angle *ABC* is 40°

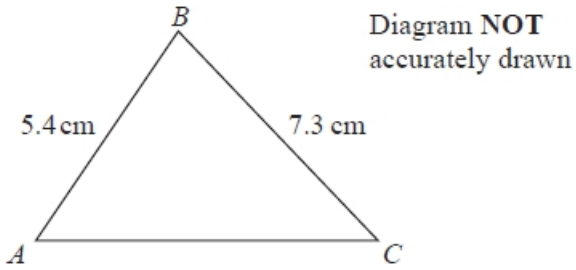
Work out the area of the parallelogram.
Give your answer correct to 1 decimal place.

..... cm^2

(Total for question = 3 marks)

Q10.

ABC is an acute angled triangle.



The area of triangle *ABC* is 19 cm^2.

Work out the size of angle *ACB*.
Give your answer correct to 3 significant figures.

..... °

(Total for question = 6 marks)

Q11.

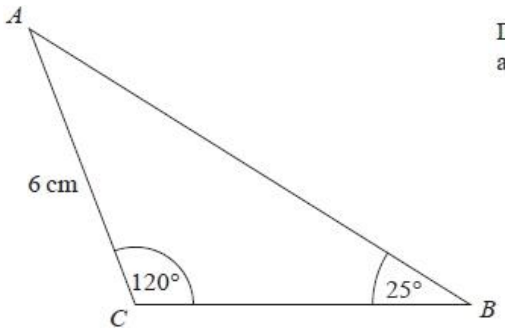


Diagram **NOT** accurately drawn

In triangle *ABC*,
AC = 6 cm
Angle *ACB* = 120°
Angle *ABC* = 25°

Work out the area of triangle *ABC*.
Give your answer correct to 1 decimal place.
You must show all your working.

..... cm^2

(Total for question = 4 marks)

Q12.

ABC is a triangle.

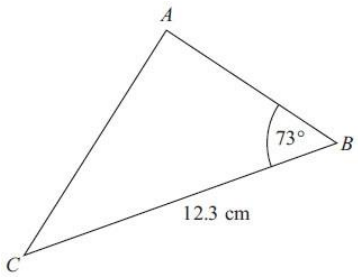


Diagram **NOT** accurately drawn

BC = 12.3 cm
Angle *ABC* = 73°

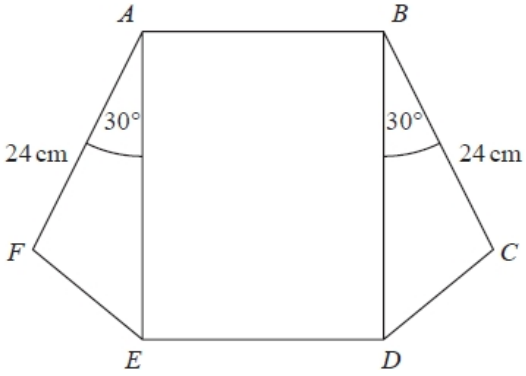
The area of triangle *ABC* is 50 cm^2.

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

(Total for Question is 6 marks)

Q13.

The diagram shows a rectangle, *ABDE*, and two congruent triangles, *AFE* and *BCD*.



area of rectangle *ABDE* = area of triangle *AFE* + area of triangle *BCD*

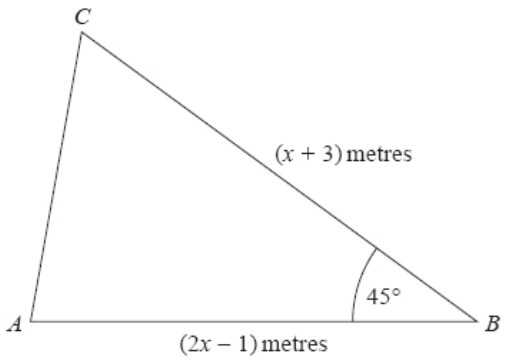
$AB : AE = 1 : 3$

Work out the length of *AE*.

..... cm

(Total for question = 4 marks)

Q14.



The area of triangle *ABC* is $6\sqrt{2}\,m^2$.

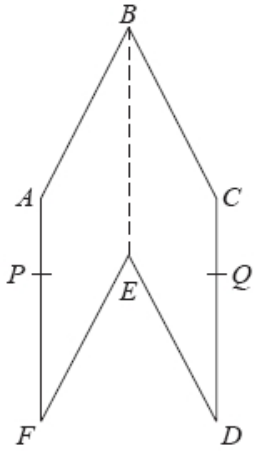
Calculate the value of *x*.
Give your answer correct to 3 significant figures.

.....

(Total for question = 5 marks)

Q15.

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)