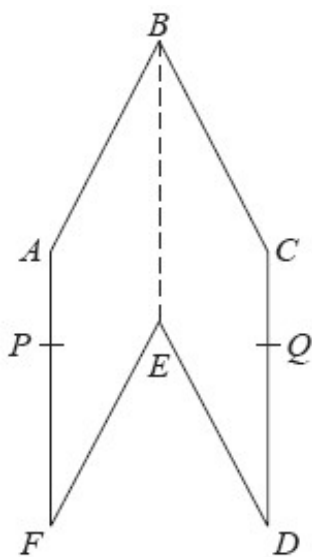


GCSE QUESTIONS

Q1. NON-CALCULATOR

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 $ABC = 30^\circ$,

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

(Total for question = 5 marks)

Q2. CALCULATOR ALLOWED

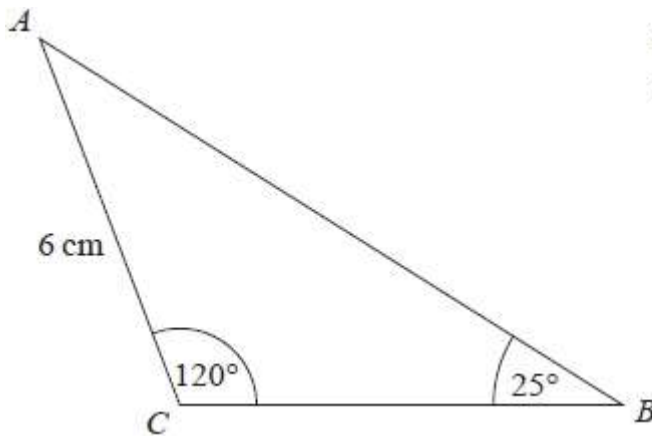


Diagram NOT accurately drawn

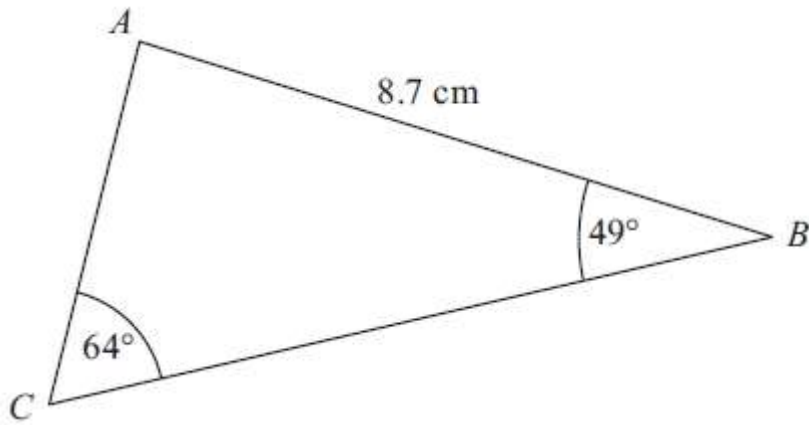
In triangle ABC ,
 $AC = 6$ cm
Angle $ACB = 120^\circ$
Angle $ABC = 25^\circ$

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

..... cm²

(Total for question = 4 marks)

Q3. CALCULATOR ALLOWED



ABC is a triangle.

$AB = 8.7$ cm.

Angle $ABC = 49^\circ$.

Angle $ACB = 64^\circ$.

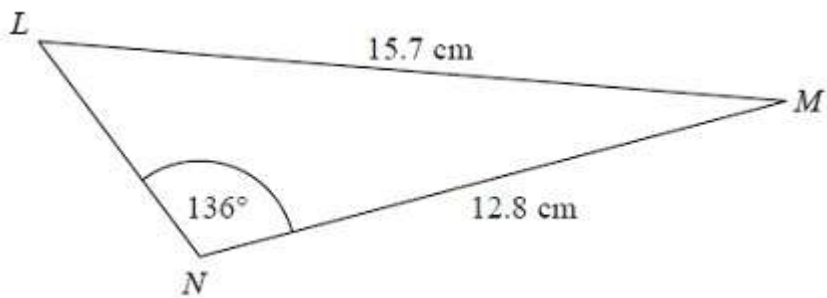
Calculate the area of triangle ABC . Give your answer correct to 3 significant figures.

..... cm²

(Total for Question is 5 marks)

Q4. CALCULATOR ALLOWED

The diagram shows triangle LMN .

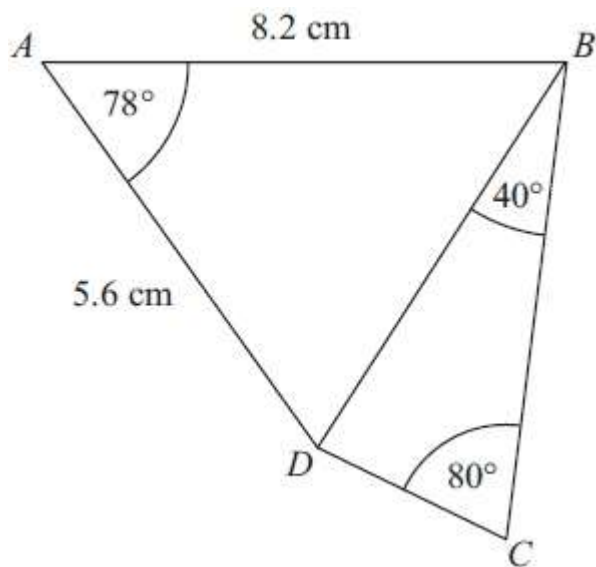


Calculate the length of LN . Give your answer correct to 3 significant figures.

..... cm
(Total for Question is 5 marks)

Q5. CALCULATOR ALLOWED

$ABCD$ is a quadrilateral.



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

..... cm
(Total for Question is 6 marks)

Q6. CALCULATOR ALLOWED

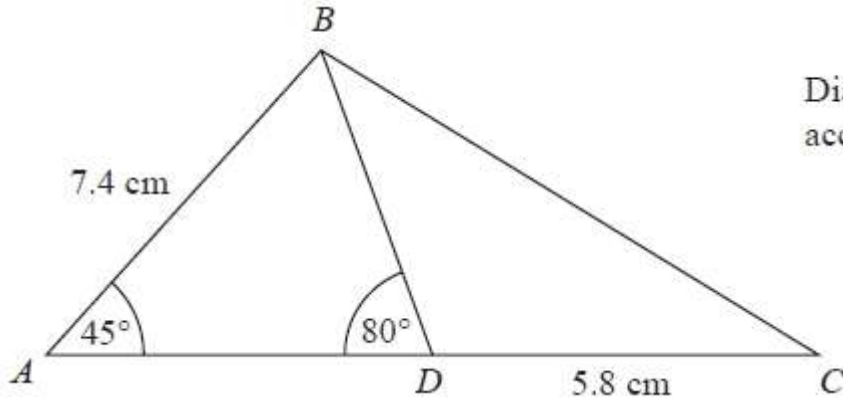


Diagram **NOT**
accurately drawn

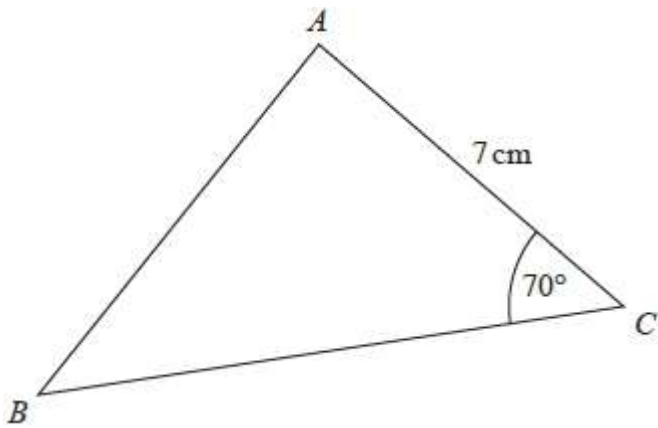
ABC is a triangle.
 D is a point on AC .
Angle $BAD = 45^\circ$
Angle $ADB = 80^\circ$
 $AB = 7.4$ cm
 $DC = 5.8$ cm

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

..... cm

(Total for question = 5 marks)

Q7. CALCULATOR ALLOWED



The area of triangle ABC is 42 cm^2

Find the length of AB . Give your answer correct to 3 significant figures.

..... cm

(Total for question = 5 marks)

Q8. CALCULATOR ALLOWED

In triangle RPQ ,

$$RP = 8.7 \text{ cm}$$

$$PQ = 5.2 \text{ cm}$$

$$\text{Angle } PRQ = 32^\circ$$

- (a) Assuming that angle PQR is an acute angle, calculate the area of triangle RPQ .
Give your answer correct to 3 significant figures.

.....cm²

(4)

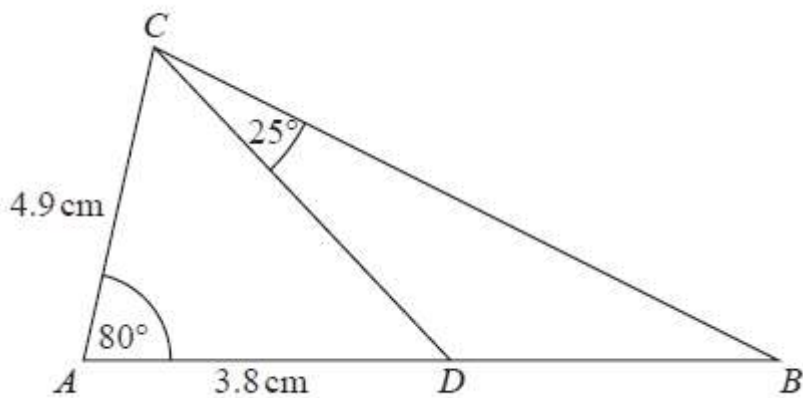
- (b) If you did not know that angle PQR is an acute angle, what effect would this have on your calculation of the area of triangle RPQ ?

.....
.....
.....

(1)

(Total for question = 5 marks)

Q9. CALCULATOR ALLOWED



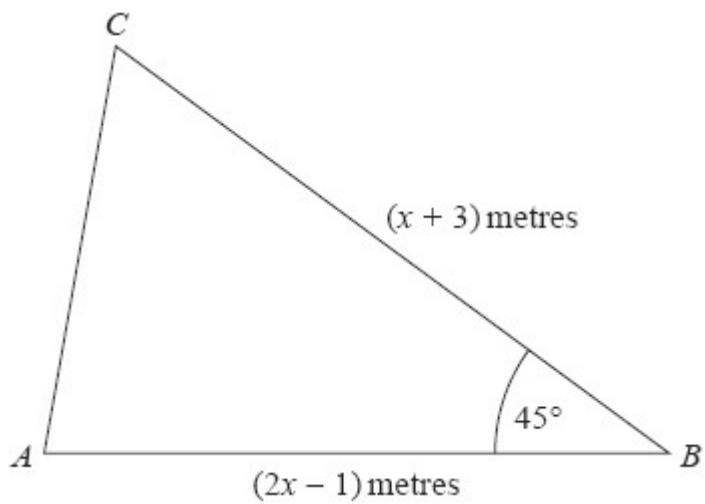
ABC is a triangle.
 D is a point on AB .

Work out the area of triangle BCD . Give your answer correct to 3 significant figures.

..... cm^2

(Total for question = 5 marks)

Q10. CALCULATOR ALLOWED

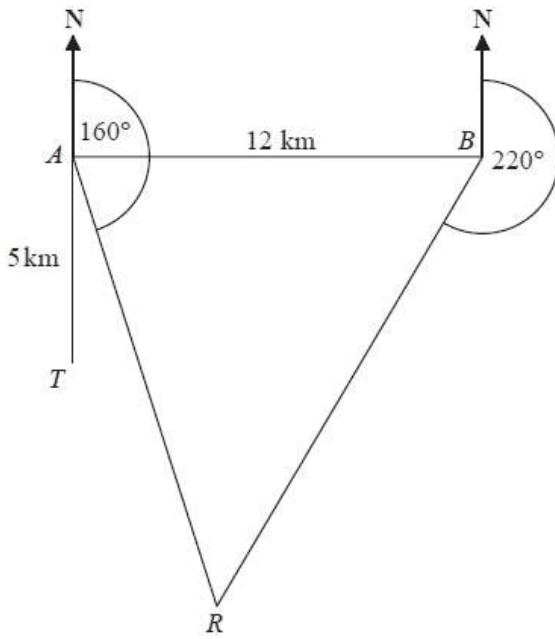


The area of triangle ABC is $6\sqrt{2} \text{ m}^2$.

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

.....
(Total for question = 5 marks)

Q11. CALCULATOR ALLOWED



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*.

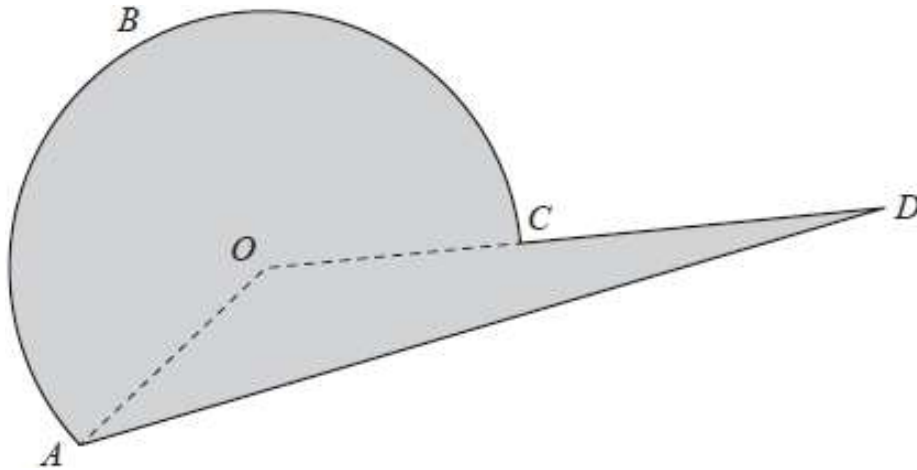
Give your answer correct to 1 decimal place. You must show all your working.

.....km

(Total for question = 5 marks)

Q12. CALCULATOR ALLOWED

Here is a shaded shape $ABCD$.



The shape is made from a triangle and a sector of a circle, centre O and radius 6 cm.
 OCD is a straight line.

$AD = 14$ cm

Angle $AOD = 140^\circ$

Angle $OAD = 24^\circ$

Calculate the perimeter of the shape. Give your answer correct to 3 significant figures.

..... cm

(Total for question = 5 marks)