1 The diagram shows an isosceles triangle.

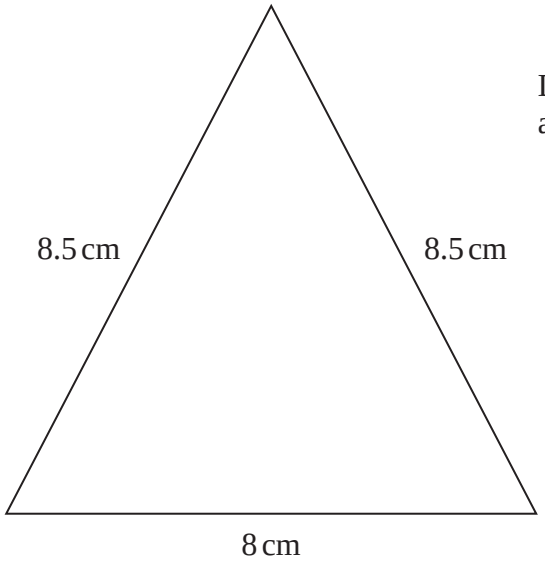

Diagram **NOT** accurately drawn

Work out the area of the triangle.

..... cm^2

(Total for Question 1 is 4 marks)

2 The diagram shows a triangle.

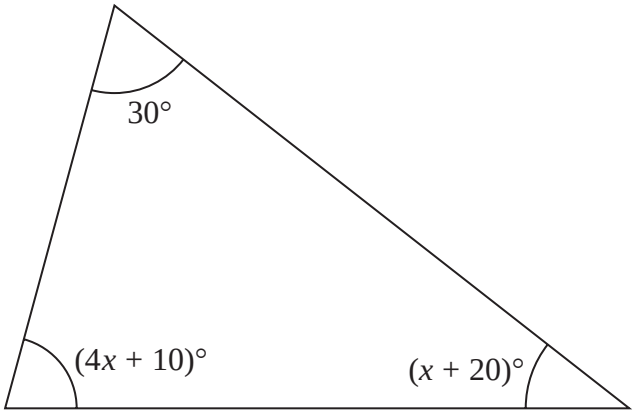

Diagram **NOT** accurately drawn

Work out the value of x.

x = ...

(Total for Question 2 is 4 marks)

3 The diagram shows two circles such that the region **R**, shown shaded in the diagram, is the region common to both circles.

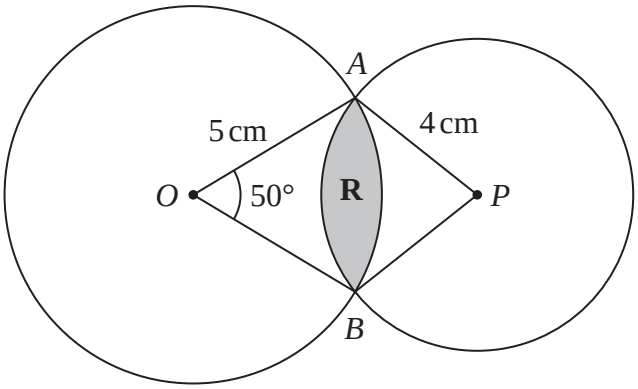

Diagram **NOT** accurately drawn

One of the circles has centre O and radius 5 cm.
The other circle has centre P and radius 4 cm.
Angle $AOB = 50°$

Calculate the area of region **R**.
Give your answer correct to 3 significant figures.

..... cm^2

(Total for Question 3 is 6 marks)

4 Here is isosceles triangle *ABC*.

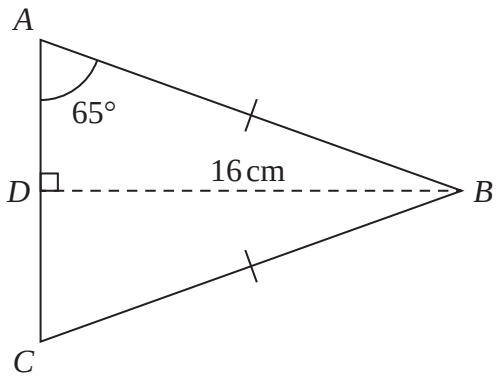

Diagram **NOT** accurately drawn

D is the midpoint of *AC* and *DB* = 16 cm.

Angle *DAB* = 65°

Work out the perimeter of triangle *ABC*.
Give your answer correct to one decimal place.

..... cm

(Total for Question 4 is 4 marks)

5 *A*, *B* and *C* are points on a circle with centre *O*.

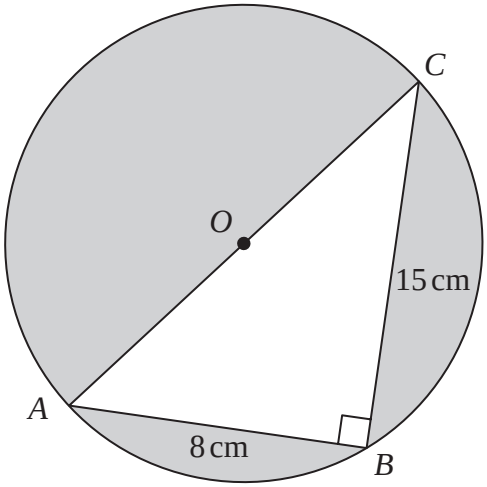

Diagram **NOT** accurately drawn

AOC is a diameter of the circle.

AB = 8 cm *BC* = 15 cm

Angle *ABC* = 90°

Work out the total area of the regions shown shaded in the diagram.
Give your answer correct to 3 significant figures.

..... cm^2

(Total for Question 5 is 5 marks)

6

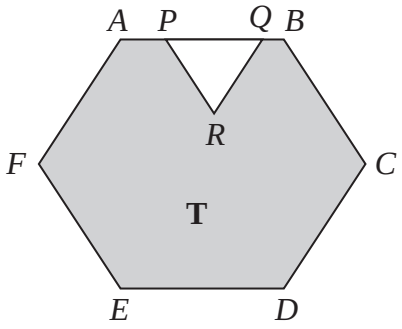

Diagram **NOT** accurately drawn

The diagram shows a shaded region **T** formed by removing an equilateral triangle *PQR* from a regular hexagon *ABCDEF*.

The points *P* and *Q* lie on *AB* such that $AB = 1.5 \times PQ$

Given that the area of region **T** is $72\sqrt{3}$ cm^2

work out the length of *PQ*.

..... cm

(Total for Question 6 is 4 marks)

7 In the diagram, *ABC* is a right-angled triangle and *DEF* is a semicircular arc.

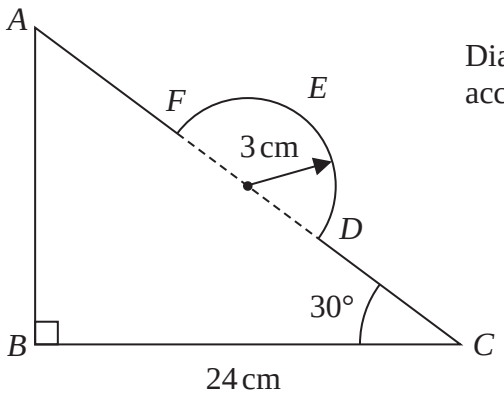

Diagram **NOT** accurately drawn

In triangle *ABC*

BC = 24 cm angle *ABC* = 90° angle *BCA* = 30°

The points *D* and *F* lie on *AC* so that *DF* is the diameter of the semicircular arc *DEF*
The radius of the semicircular arc is 3 cm.

Work out the length of *AFEDC*
Give your answer correct to 2 significant figures.

..... cm

(Total for Question 7 is 5 marks)

8 The diagram shows quadrilateral *ABCD*

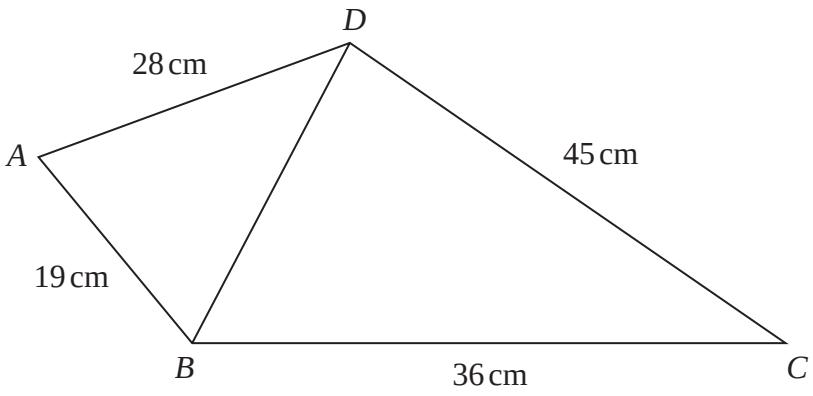

Diagram **NOT** accurately drawn

The angle *BCD* is acute.

Given that the area of triangle *BCD* = 405 cm^2

work out the size of angle *ABD*
Give your answer correct to one decimal place.

.....°

(Total for Question 8 is 5 marks)

9 The diagram shows an isosceles triangle *ABC*

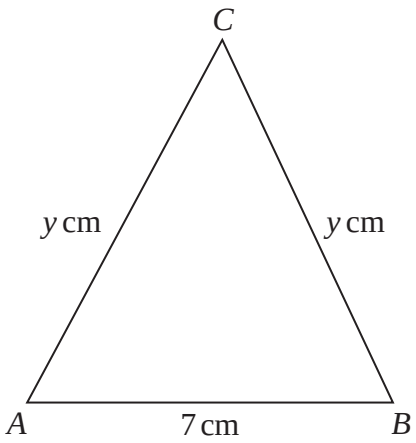

Diagram **NOT** accurately drawn

$AB = 7\,\text{cm}$ $AC = BC = y\,\text{cm}$

The area of the triangle is $42\,\text{cm}^2$

Work out the value of y

$y =$ .....

(Total for Question 9 is 4 marks)

10

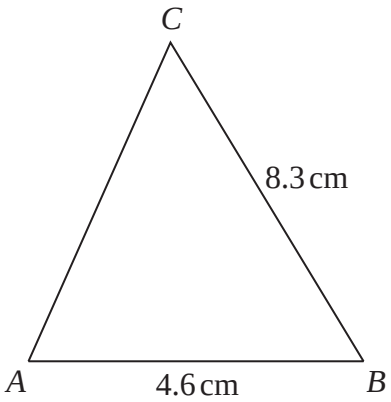

Diagram **NOT** accurately drawn

AB = 4.6 cm *BC* = 8.3 cm angle *ABC* is acute

The area of triangle *ABC* is 12 cm²

Work out the perimeter of triangle *ABC*
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 10 is 5 marks)

11 The diagram shows the cross section of a circular water pipe.

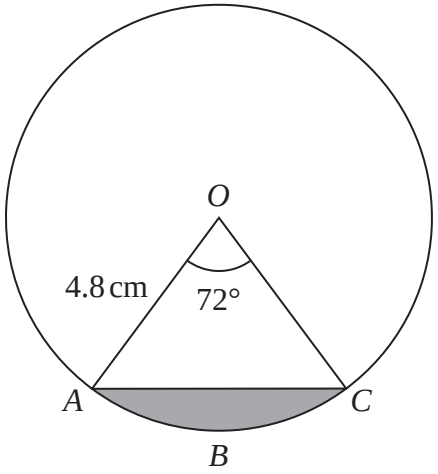

Diagram **NOT** accurately drawn

OABC is a sector of the circle, centre *O*

The shaded region in the diagram represents the water flowing in the pipe.

The water flows at 14 cm/s in the pipe.

Work out the volume of water that has flowed through the pipe in 3 minutes.
Give your answer in cm^3 correct to 3 significant figures.

..... cm^3

(Total for Question 11 is 5 marks)

12 The diagram shows a triangle ABC where A, B and C represent the positions of three towns.

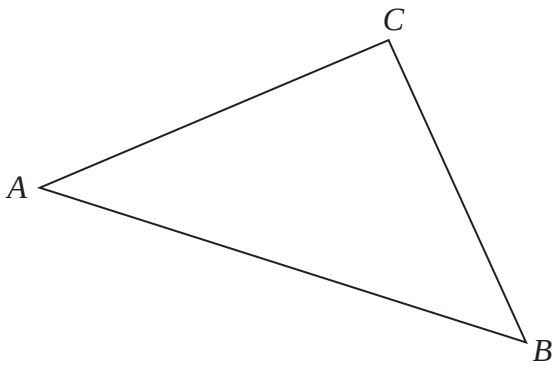

Diagram **NOT** accurately drawn

$$\overrightarrow{AB} = \begin{pmatrix} 7 \\ -2 \end{pmatrix} \qquad \overrightarrow{BC} = \begin{pmatrix} -3 \\ 5 \end{pmatrix}$$

Pru travels directly from A to B and then directly from B to C

Yang travels directly from A to C

Given that the values for $\overrightarrow{AB}$ and $\overrightarrow{BC}$ are in kilometres,

work out how much further Pru travels than Yang travels.
Give your answer in km, correct to one decimal place.

..... km

(Total for Question 12 is 5 marks)

13 Here is a triangle *ABC*

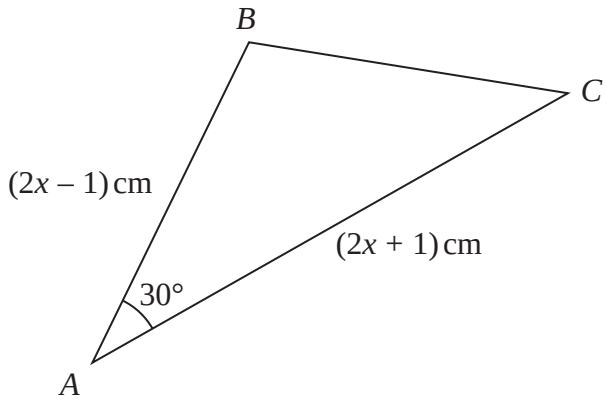

Diagram **NOT** accurately drawn

The area of the triangle is $(x^2 + x - 3.75)\,\text{cm}^2$

Find the size of the largest angle in triangle *ABC*
Give your answer correct to the nearest degree.

°

.....

(Total for Question 13 is 6 marks)