1 The diagram shows a right-angled triangle.

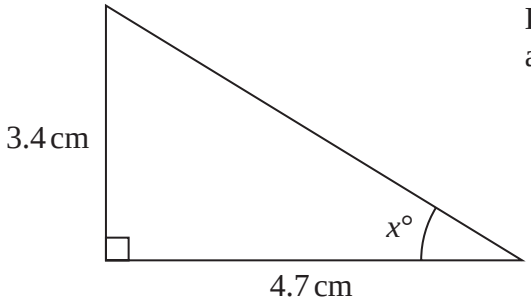

Diagram **NOT** accurately drawn

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

x = ...

(Total for Question 1 is 3 marks)

2 The diagram shows cuboid *ABCDEFGH*.

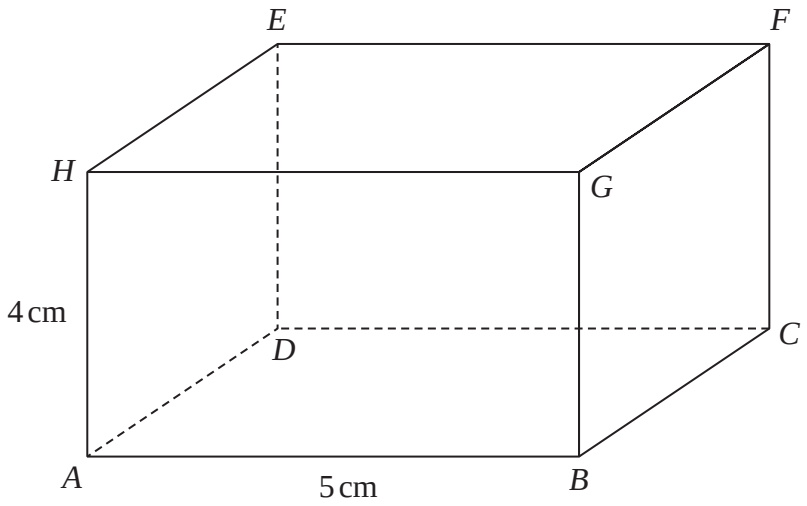

Diagram **NOT** accurately drawn

AB = 5 cm
AH = 4 cm
The size of the angle between *CH* and the plane *ABCD* is 35°

Calculate the volume of the cuboid.
Give your answer correct to 3 significant figures.

..... cm^3

(Total for Question 2 is 5 marks)

3 Here is a right-angled triangle.

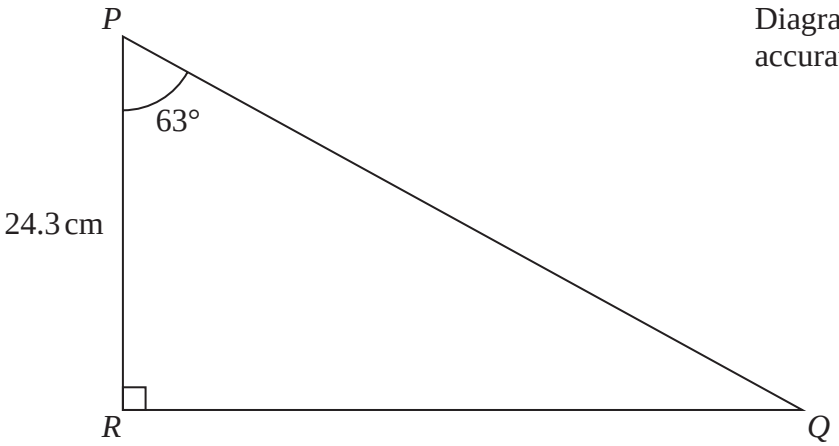

Diagram **NOT** accurately drawn

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

..... cm

(Total for Question 3 is 3 marks)

4 The diagram shows two hot air balloons.
A is a point on the base of one of the balloons and *B* is a point on the base of the other balloon.

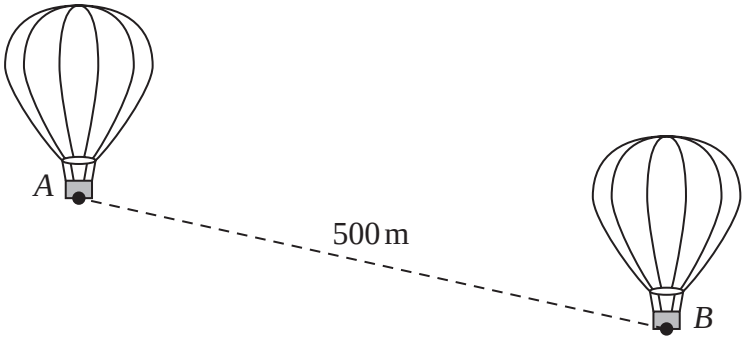

Diagram **NOT** accurately drawn

The distance between *A* and *B* is 500 metres.
The angle of depression of *B* from *A* is 23°

Calculate the vertical height of *A* above *B*.
Give your answer correct to one decimal place.

..... metres

(Total for Question 4 is 3 marks)

5 Here is isosceles triangle *ABC*.

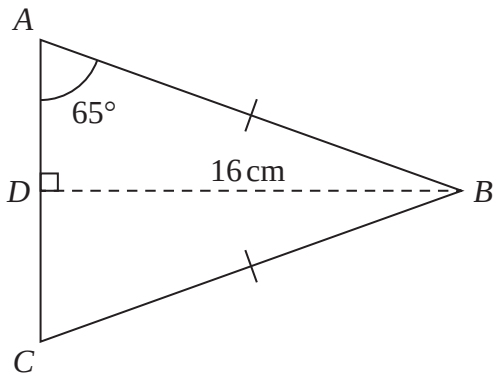

Diagram **NOT** accurately drawn

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 5 is 4 marks)

6 The diagram shows triangle *ABP* inside the regular hexagon *ABCDEF*

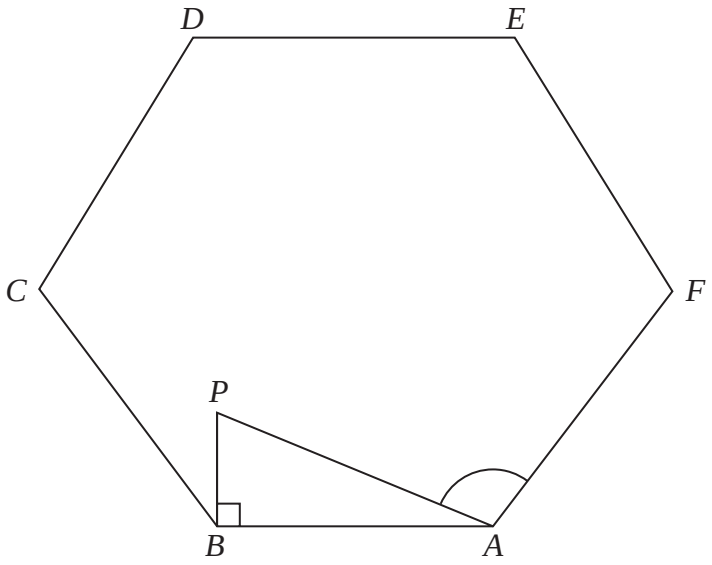

Diagram **NOT** accurately drawn

AB = 5 cm *BP* = 2 cm Angle *ABP* = 90°

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

.....°

(Total for Question 6 is 5 marks)

7 The diagram shows triangle PQR.

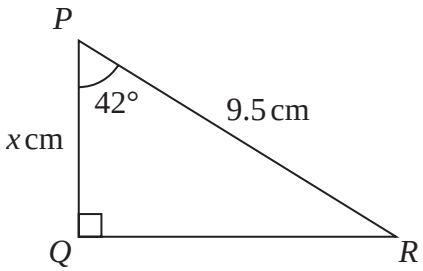

Diagram **NOT** accurately drawn

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

x = ...

(Total for Question 7 is 3 marks)

8 The diagram shows two vertical phone masts, *AB* and *CD*, on horizontal ground.

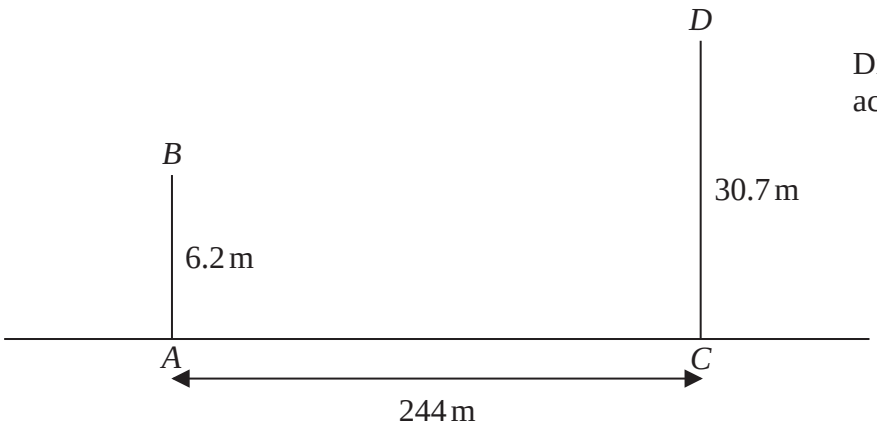

Diagram **NOT** accurately drawn

AB = 6.2 m *AC* = 244 m *CD* = 30.7 m

Work out the size of the angle of depression of *B* from *D*
Give your answer correct to one decimal place.

.....°

(Total for Question 8 is 3 marks)

9 A zip wire is shown as the dashed line *AC* in the diagram.

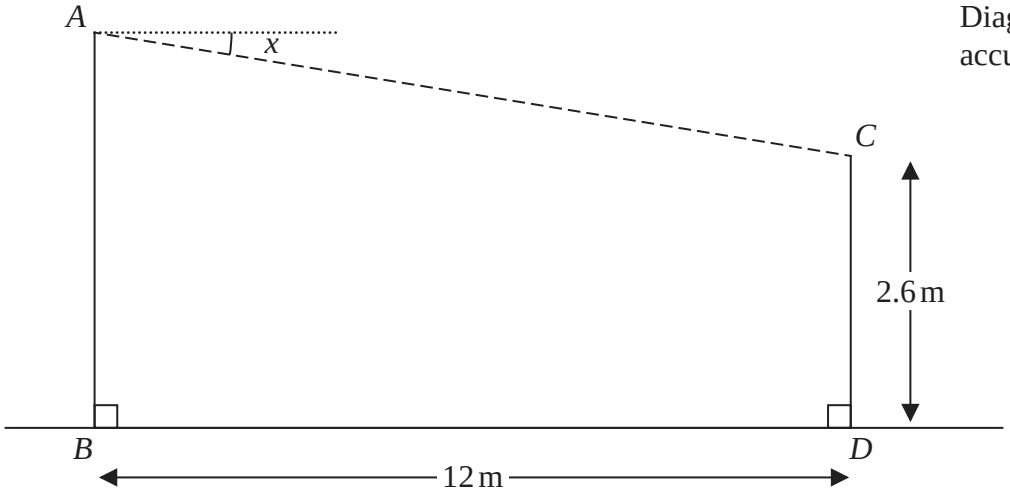

Diagram **NOT** accurately drawn

The zip wire is supported by two vertical posts *AB* and *CD* standing on horizontal ground.

$CD = 2.6\,\text{m}$ $BD = 12\,\text{m}$

The zip wire makes an angle x with the horizontal, as shown in the diagram.
The design of the zip wire requires the angle x to be at least 5°

Work out the least possible height of the post *AB*
Give your answer correct to 3 significant figures.

..... m

(Total for Question 9 is 3 marks)

10 R and T are points on a circle, centre O

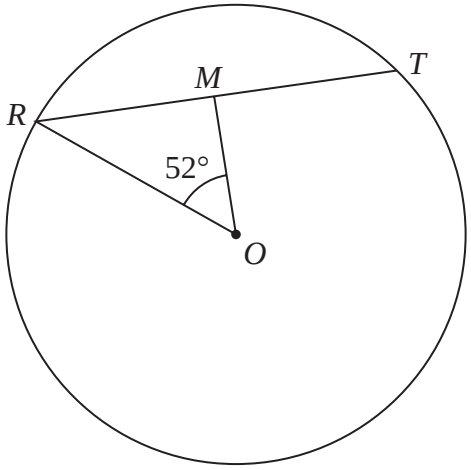

Diagram **NOT** accurately drawn

$RT = 12$ cm
M is the midpoint of RT
Angle $ROM = 52°$

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

..... cm^2

(Total for Question 10 is 4 marks)

11 The diagram shows a rectangular sheet of metal *ABCD*

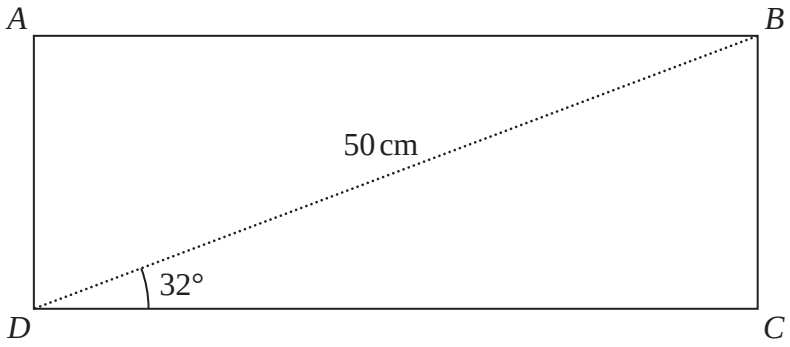

Diagram **NOT** accurately drawn

BD = 50 cm and angle *BDC* = 32°

Nasser joins side *AD* to side *BC* to form a cylinder.

BC is the height of the cylinder.
DC is the circumference of the cross section of the cylinder.

Work out the volume, in cm^3, of the cylinder.
Give your answer correct to 3 significant figures.

..... cm^3

(Total for Question 11 is 6 marks)

12 The diagram shows right-angled triangle *ABD*

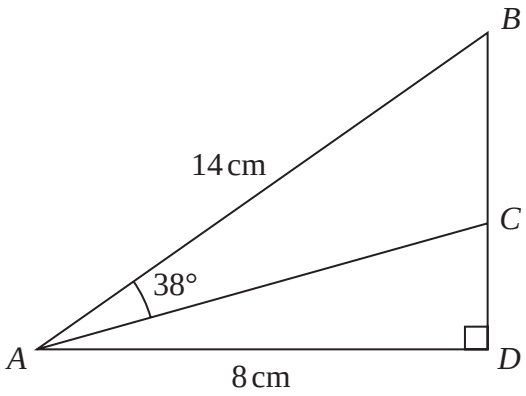

Diagram **NOT** accurately drawn

AB = 14 cm *AD* = 8 cm

C is the point on *BD* such that angle *BAC* = 38°

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

..... cm

(Total for Question 12 is 4 marks)