Name:
Group A
Result:

1. [2 *points*]

The observer is 100 m from the base of the tower. The angle of elevation from the observer to the top of the tower is 15°.
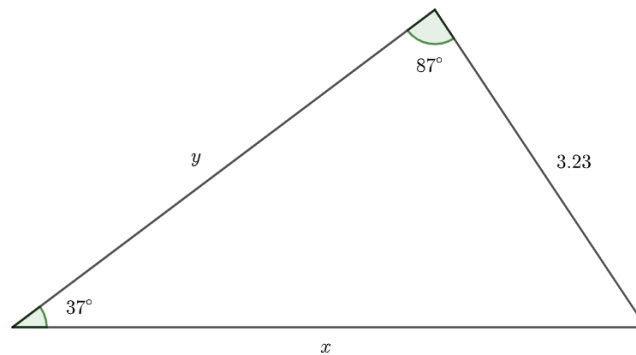a) Sketch a diagram to illustrate the information given.

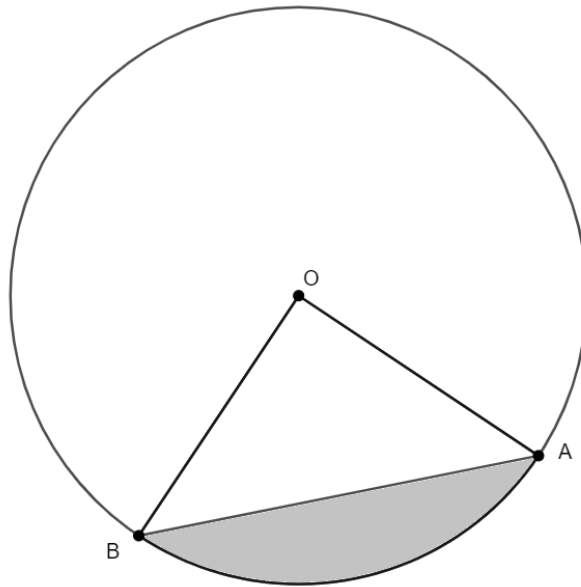b) Find the height of the tower.

2. [2 *points*]

Find x and y. Give your answers correct to 3 significant figures.

3.   [*3 points*]

Find the area of the shaded region given that O is the centre of the circle, its radius is equal to 4 *cm* and the length of the minor arc $\overset{\frown}{AB}$ is 6 *cm*.

4. [4 *points*]

A triangle ABC has $|AB| = 5$ cm and $|AC| = 4$ cm. The area of this triangle is 5 cm^2. Find the two possible values of $\angle BAC$ and hence find possible value of $|BC|$.
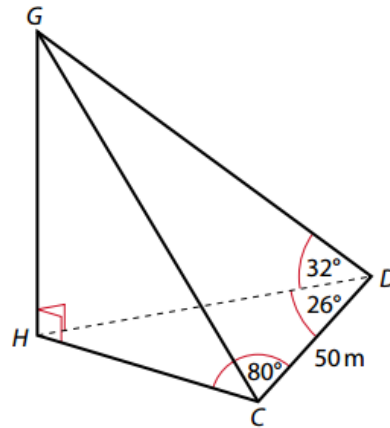
5. [3 *points*]

A boat is sailing directly towards a cliff. The angle of elevation of a point on the top of the cliff and straight ahead of the boat increases from $10°$ to $14°$ as the ship sails a distance of 50 metres. Find the height of the cliff.

6.   [*3 points*]

The diagram shows a vertical pole GH that is supported by two wires fixed to the horizontal ground at C and D. The following measurements are indicated in the diagram: $|CD| = 50\ m$, $\angle GDH = 32°$, $\angle HDC = 26°$ and $\angle HDC = 80°$.

a) Calculate the length of HD

b) Calculate the height of the pole GH.

7. [3 *points*]

Point A is 10 km due South of point B. Points C and D are on a bearing of 050° from A. Both C and D are at a distance of 8 km from B (with $|AD| > |AC|$).

a) Sketch a diagram to illustrate the information given.

b) Find the bearing from B to D.