**10**

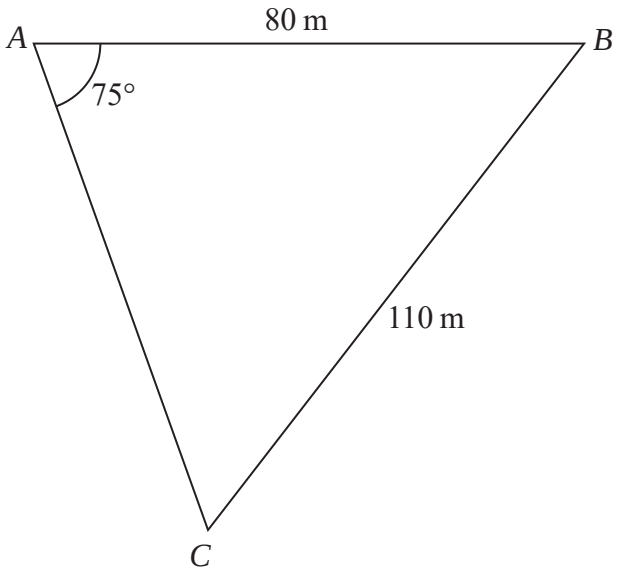


Diagram **NOT** accurately drawn

**Figure 3**

Figure 3 shows a triangular field $ABC$ on horizontal ground with $AB = 80$ metres, $BC = 110$ metres and $\angle BAC = 75°$

In this question, give **all** your answers to 3 significant figures.

Find

(a) the size, in degrees, of $\angle ACB$,

**(3)**

(b) the length, in metres, of $AC$.

**(4)**

$M$ is the midpoint of $BC$.

(c) Find the length, in metres, of $AM$.

**(3)**

A vertical mast, $PA$ is positioned at $A$. The angle of elevation of the top of the mast, $P$, from the point $B$ is 41°

(d) Find the height, in metres, of the mast $AP$.

**(2)**

$Q$ is the midpoint of $AP$ and a straight cable joins $Q$ to $M$.

(e) Find the length, in metres, of $QM$.

**(2)**

(f) Find the size, in degrees, of the angle of depression of the point $M$ from the point $Q$.

**(2)**

$$\left[\begin{array}{c} \text{Sine Rule: } \dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C} \\ \\ \text{Cosine Rule: } a^2 = b^2 + c^2 - 2bc\cos A \end{array}\right]$$

**Question 10 continued**

**Question 10 continued**

**Question 10 continued**

**(Total for Question 10 is 16 marks)**