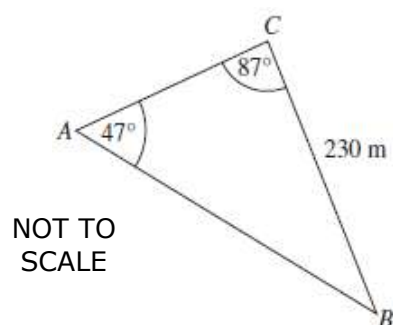


- SQ ME 25** Lisa owns a piece of land as shown in the diagram. The length of BC is 230 metres. The size of angle BCA is 87° and of angle BAC is 47° . Lisa wants to build a fence along AC . Fencing can be purchased in metre lengths at a cost of \$65 per metre. Calculate the cost of the fencing required.



4

$$\begin{aligned}\angle ABC &= 180^\circ - (87^\circ + 47^\circ) \\ &= 46^\circ\end{aligned}$$

Let $AC = x$.

Using sine rule,

$$\frac{x}{\sin 46^\circ} = \frac{230}{\sin 47^\circ}$$

$$x = \frac{230 \sin 46^\circ}{\sin 47^\circ}$$

$$= 226.2218045\dots$$

$$= 227 \text{ (to next whole number)}$$

\therefore Lisa requires 227 metres of fencing.

$$\text{Cost} = \$65 \times 227$$

$$= \$14\,755$$

\therefore the cost is \$14 755.

* These solutions have been provided by [projectmaths](http://projectmaths.com.au) and are not supplied or endorsed by NESA.