

Marking the Foundations

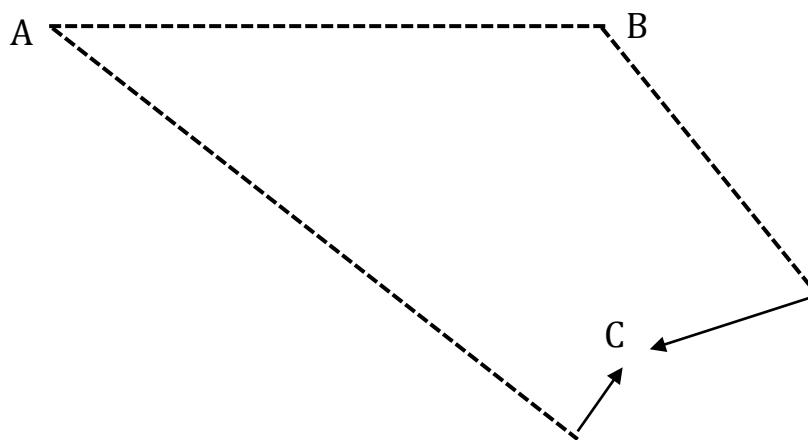
Some builders are marking out the foundations for a new house, but they must make sure that the corners are built at right angles accurately.

In order to make sure that the corners are set at 90° , the builders measure three lengths of string. These measurements are whole numbers of feet.

The first is pegged out where they know one wall will be. This one is shown on the diagram as line AB, where B is where the corner is to be built.

The second piece of string is attached at B, and the third is attached at A.

They stretch these pieces of string to their full lengths, and then bring the ends together at C, where they then peg the ends down.



Question

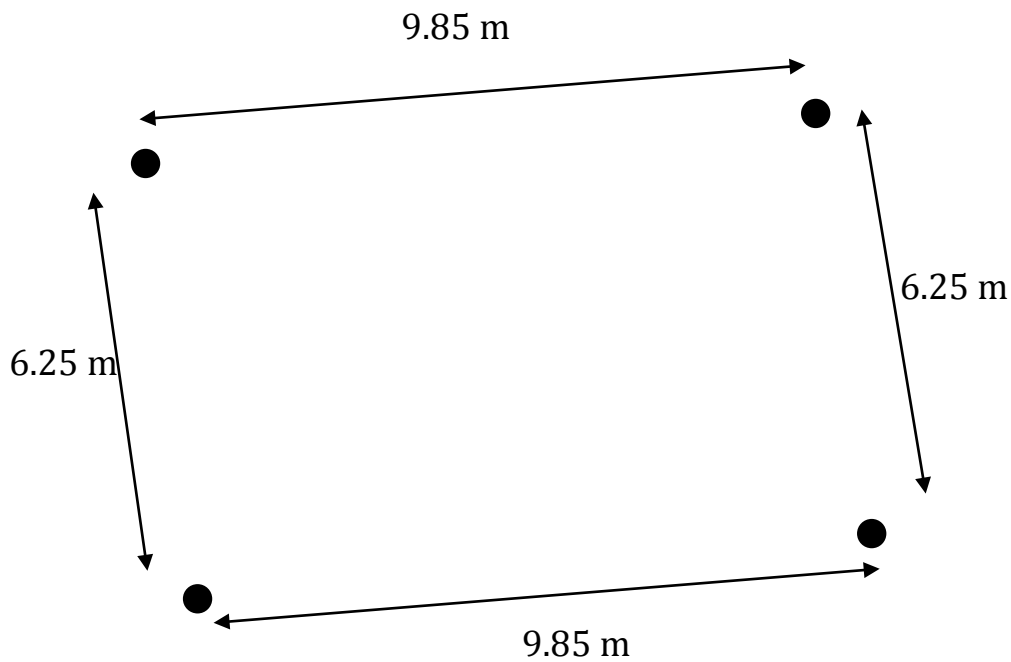
Suggest three suitable lengths for the three pieces of string for the builders to use, to guarantee that $\angle ABC$ is 90° .

You must specify the length for each piece of string, AB, BC and AC.

Extension Question

The builders have set out their initial foundation marker posts at the four corners of the building.

They know from their measurements that the four posts make a quadrilateral with sides 9.85 m and 6.25 m as shown on the diagram.



However, they want to confirm that the posts are set so that they form a perfect rectangle.

What further lengths do they need to measure to confirm this?

What should the measurements be?