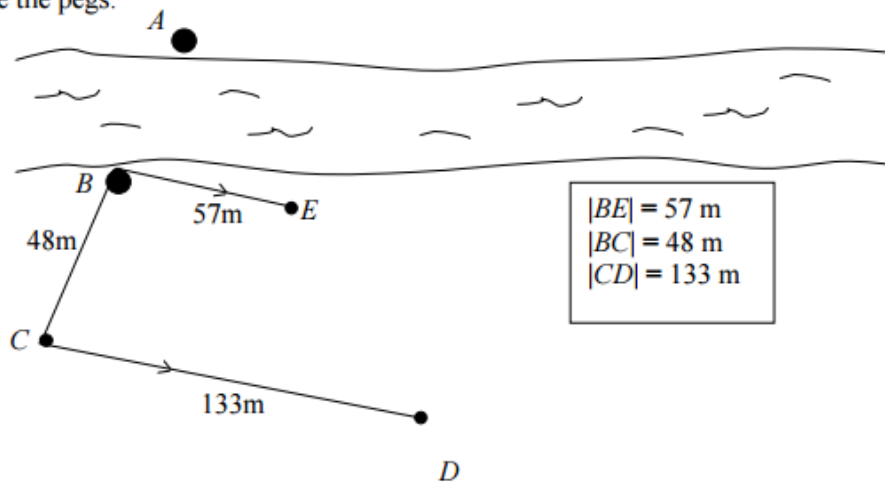


Application of Theorem 13

A group of students were trying to find the distance between two trees on opposite sides of a river using pegs, a measuring tape and a large amount of string. They align the pegs in a particular way, take several measurements and sketch this diagram. On the diagram, A and B are the trees and C , D and E are the pegs.



- (a) In what way must the pegs and the trees be aligned if the students are to use these measurements to calculate $|AB|$.
- (b) Calculate the distance between the trees.
- (c) Another group of students repeats the activity. They have a similar diagram but different measurements. Their measurements are $|BE| = 40 \text{ m}$ and $|BC| = 9 \text{ m}$. Based on the value of $|AB|$ that the first group got, what measurement will this second group have for $|CD|$.
- (d) Suggest how the group of students might have ensured that $[BE]$ was parallel to $[CD]$.