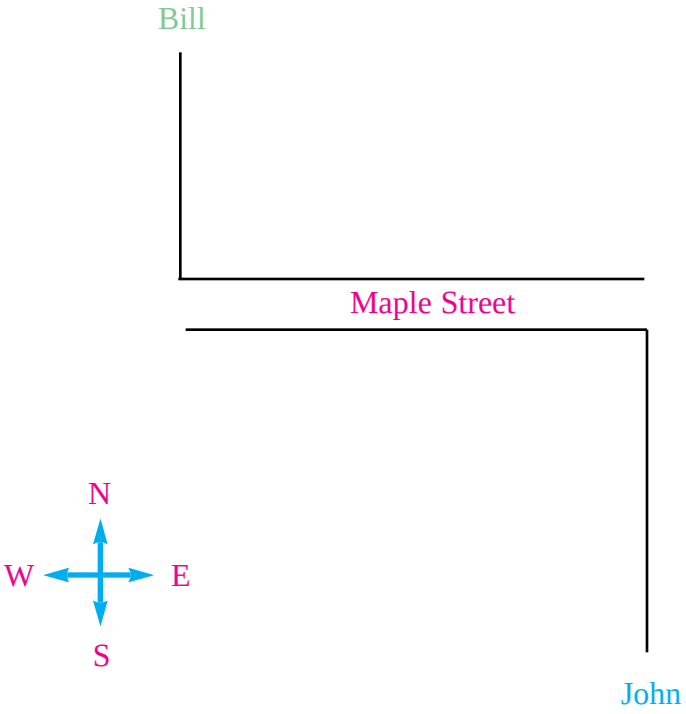
The Shortest Path

The Problem

Bill wants to walk to John's house. During the walk, he will cross Maple Street at a crossing signal. So, his path across Maple is at right angles to that street. Maple Street is 500 feet south of Bill's house and 700 feet north of John's house. John's house is 1000 feet east of Bill, and Maple Street is 100 feet wide. Where should Bill cross the street to make his walk the shortest?



Strategies and Hints

1. What is the shortest distance between any two points?
2. If Maple Street were 200 feet wide, would it change the answer to the problem?
3. Draw a diagram showing Bill's walk. Do you see any similar triangles?