



# Problem of the Week

## Problem E

### The King's Coach

A king loves to travel from his castle to his summer house by coach. He orders his coachman to never go straight when he arrives at an intersection and to never travel along the same section of road twice during a trip. The coachman must turn either right or left when he comes to any intersection.

The map shows all of the roads leading from the palace to the summer house. The thick black lines indicate roads. All roads connecting two adjacent intersections are 1 km long.

The coachman wants to take the shortest route. Determine the length of the shortest route and justify why no shorter route is possible.



SUMMER HOUSE



CASTLE

