

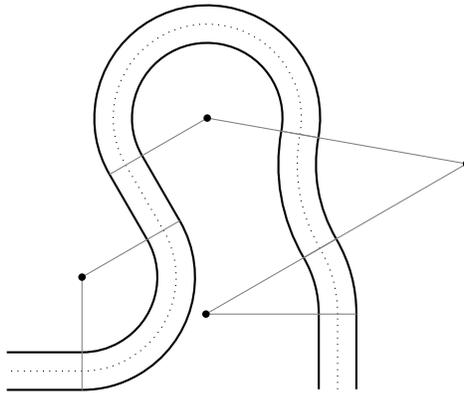
Problem 6: Windy Road

USMA D/Math Problem of the Week

Submission Deadline: October 25, 2007 at 1600

Circle one: cadet faculty non-usma student non-usma faculty other

Problem Statement: A certain road 20ft wide follows a path which consists entirely of circular arcs and line segments. The two sides of the road are also arcs, whose radii are 10ft shorter and longer than the central arc. An example is depicted here, along with the center points of the curve:



If the road begins at a heading of due North, and ends at a heading of due West, what is the difference in lengths between the two sides of the road? [Assume the earth is flat, the road never crosses itself, and the radius of each segment is greater than 10ft.]

Submit your answer to Dr. Elisha Peterson at ae3263@usma.edu as an attachment to your email, with the subject line **WP POTW**. Or drop your solution off in my mailbox or on my desk (with date and time please!)