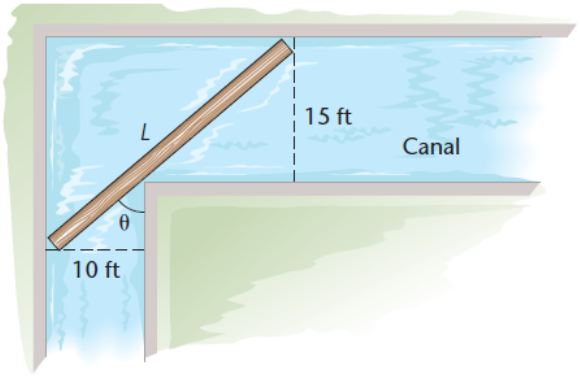
Fall 2011
Precalculus
Project D

A 10-foot-wide canal makes a right turn into a 15-foot-wide canal. Long narrow logs are to be floated through the canal around the right angle turn (see the figure). We are interested in finding the longest log that will go around the corner, ignoring the log's diameter.



1. Express the length L of the line that touches the two outer sides of the canal and the inside corner in terms of θ.

2. Find the shortest distance L that is, the length of the longest log that can make it around the corner.

3. Plot the graph of L as a function of θ

4. Explain what happens to the length L as the angle approaches $\frac{\pi}{2}$.