

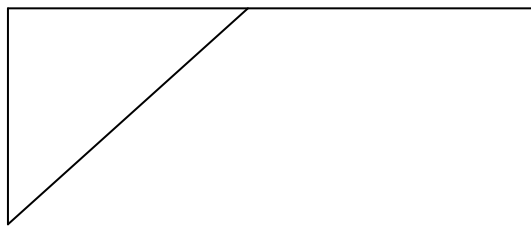
Math 180
Spring 2010

Lab #2

Due Thursday, May 13

Late papers lose one grade point for each class period late!

A person in a boat on a lake is 9 kilometers from the shore and must go to a point 12 kilometers down the shoreline in the shortest possible time. The person can walk 8 kilometers per hour and the boat can travel r kilometers per hour.



- Assume that the person should travel by boat and by foot. Let d be the distance down the shoreline the person should strike land for the shortest total travel time. Write d as a function of r .
- Sketch the graph of the function $d(r)$. Determine the slowest speed of the boat so the shortest possible time criteria is met by making the entire trip by water. Use this to give the domain of the function in the context of this problem.
- Determine the concavity of the graph of the function d over the domain stated in part (b). What information does the concavity give about the relationship between d and r ?