Math 141 – Calculus I

Getting Through the Woods

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The Problem

- A traveler wants to get from one road to a house on another road.
- The roads are parallel and 1/4 mile apart, separated by woods.
- The house is 2 miles down the road from the traveler.
- The traveler can jog at 5 mph along either road, but he must walk at only 3 mph through the woods.
- What route should he follow to minimize the travel time?
Possible Solutions

Minimize the time to the house

Traveler → Home
Minimize the Total Distance
Minimize the Distance Through the Woods

Traveler

Minimize the distance through the woods

Home
Minimize the Distance Through the Woods

The Problem
Possible Solutions
A Modified Problem

Minimize the distance through the woods

Traveler

Home
Minimize the Distance Through the Woods

The Problem

Possible Solutions

A Modified Problem
A Modified Problem

- What if the traveler can jog at 6 mph on the first road?
- What route should he follow to minimize the travel time?
Minimize the Distance Through the Woods

Traveler

6 mph

3 mph

5 mph

Home