Psychology of Perception
Psychology 4165-100
Spring 2008

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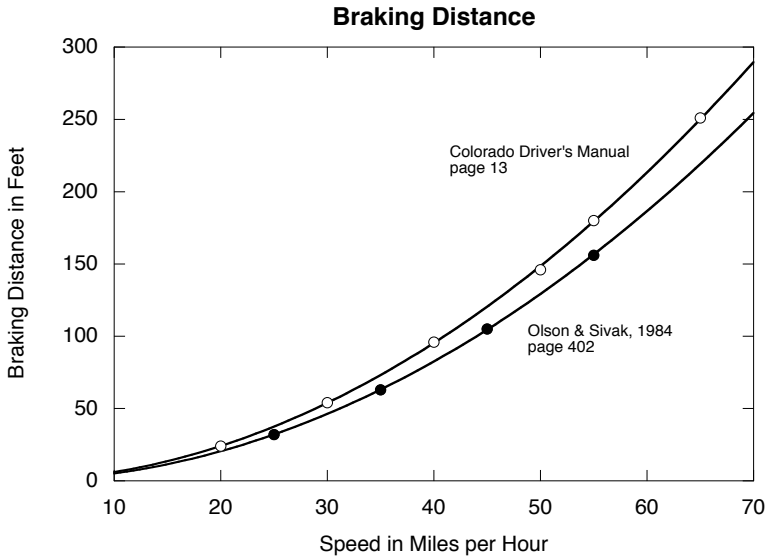
MUEN D156, 09:30–10:45 TR

Homework 4: Perception Reaction Time
10 Points: Due at beginning of class, Thursday, 21 February 2008

There are two parts to this homework assignment. Each part counts 5 points. Late homework will receive a grade of zero.

Part 1: At 50 miles per hour an average automobile needs about 148 feet to brake to a stop, as is shown in the upper curve of the graph below. Assume that the perception reaction time is 2.0 seconds. What is the minimum visibility distance, in feet, needed to be able to bring a car to a stop to avoid hitting a pedestrian standing in the roadway? Show your calculations and explain your answer.



Part 2: If the automobile's low beam headlights provide effective illumination of a darkly-clad pedestrian out to a distance of 100 feet, will the car described in Part I hit the pedestrian at night? The braking distance from the Colorado Driver's Manual is well—described by the following equation:

$$Feet = 0.062673 \cdot MPH^{1.9862}$$

What is the maximum speed of a car that will allow it to stop just short of the pedestrian? Show your calculations and explain the basis of your answer.