

Practice Problems 7 - Math 141, Frank Thorne (thornef@mailbox.sc.edu)

☠ ☠ WARNING!! ☠ ☠

On exams, to receive full credit solutions to related rates questions must be **clearly explained** and **include a picture** where appropriate.

- (a) Thomas, Ch. 3.10, 11-42.
- (b) A searchlight L is 200 feet from a prison wall. It rotates at a constant rate of one revolution per 6 minutes.
An escaped felon is running along the wall trying to keep just ahead of the beam of light. At the moment when the searchlight angle is 45 degrees, how fast does the prisoner have to run?
- (c) What do the words **absolute maximum**, **absolute minimum**, **local maximum**, and **local mini- mum** mean?
- (d) What is the first derivative theorem for local extreme values? Why is it true?
- (e) Explain how to find the absolute extrema of a continuous function on a closed interval.
- (f) Thomas Ch. 4.1, 1-14, 21-36, 57-62.