**Math 141 Test #2 Redo**
Due Monday 11/12/07, 11:00 AM

Instructions: Redo this problem on your own paper. (Don't hand in a copy of this sheet.) Your solution should be clear, legible, and well-organized. I will grade it using the same rubric as for the actual midterm problem, although with higher standards of clarity. The grade I will record for you on this problem is $(A + 2B)/3$, where A is the number of points you earned on Friday's exam (out of 35) and B is the number of points you earn with your rewritten solution (unless $B < A$, in which case you will not lose any points, but will keep your old score).

When you redo the problem, you are on your honor not to consult with any other person, whether another Math 141 student or anyone else.

A boat is anchored in the middle of a lake, 80 ft away from the closest point P on the shoreline. A dog named Rover is standing on the shore, 80 ft away from P, as in the following figure. Here B is the location of the boat and R is where Rover is standing.
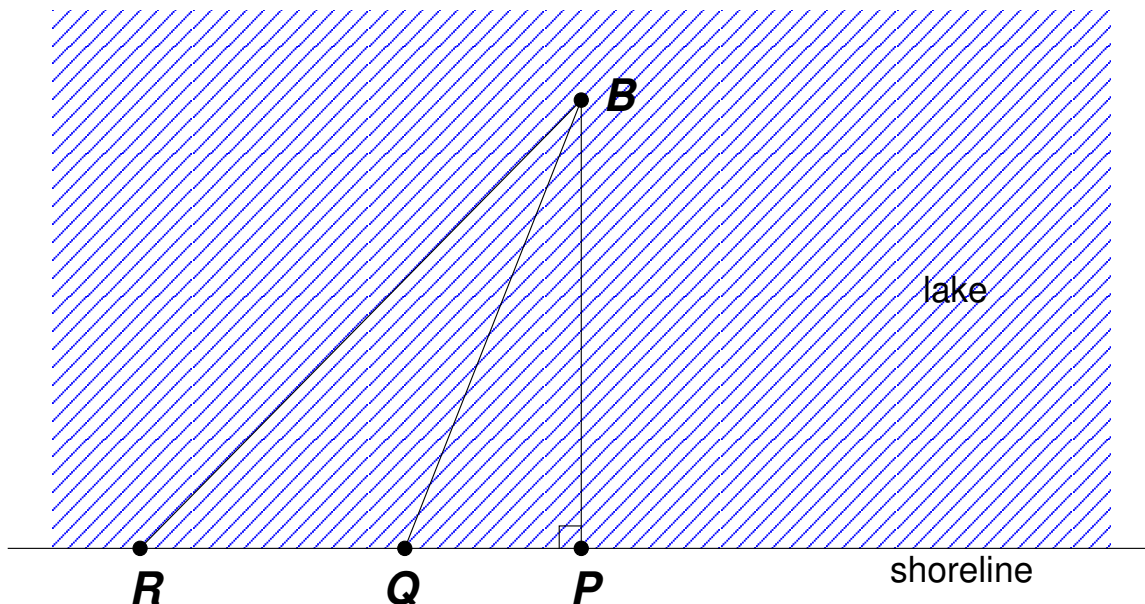
Rover, who has taken calculus, wants to get to the boat by running along the shore, then jumping into the water at a point Q and swimming the rest of the way. Rover can run at a rate of 10 ft/sec and can swim at a rate of 6 ft/sec.

Problem #1 [15 pts]   If Rover wants to get to the boat as quickly as possible, how far from P should he jump into the water? That is, where should the point Q be located?

Problem #2 [10 pts]   How would the answer change if Rover were instead only 30 ft away from point P?

Problem #3 [10 pts]   Rover is being videotaped by a camera mounted on the boat, which rotates to follow him as he runs. How fast is the camera rotating at the instant that Rover starts running? (Assume again that Rover starts 80 ft away from point P.) Your answer should include appropriate units.