More Optimization Questions (Section 4.5)

**O1.** An offshore oil well is 2 kilometers off the coast. The refinery is 4 kilometers down the coast. Laying pipe in the ocean is twice as expensive as on land. What path should the pipe follow in order to minimize cost?

**O2.** A rectangular package to be sent by a postal service can have a maximum combined length and girth of 108 inches. (The girth is the perimeter of a cross section.) Assuming that the cross section is square, find the maximum volume that can be sent.

**O3.** A farmer wishes to enclose a rectangular lot of pasture next to a river. The farmer wishes to enclose 120,000 square feet in the lot. Assuming that he does not need any fence along the river, what is the minimum amount of fencing needed?