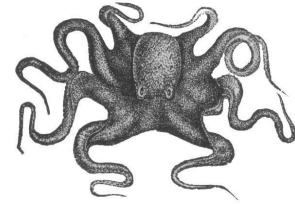


7. (14 points) No matter what is done with the other exhibits, the octopus tank at the zoo must be rebuilt. (The current tank has safety issues, and there are fears that the giant octopus might escape!) The new tank will be 10 feet high and box-shaped. It will have a front made out of glass. The back, floor, and two sides will be made out of concrete, and there will be no top. The tank must contain at least 1000 cubic feet of water. If concrete walls cost \$2 per square foot and glass costs \$10 per square foot, use calculus to find the dimensions and cost of the least-expensive new tank. [Be sure to show all work.]



GIANT OCTOPUS (*Enteroctopus*)²

Dimensions: _____

Minimum Cost: _____

²See <http://www.cephbase.utmb.edu/Tcp/pdf/anderson-wood.pdf>. (They really DO escape....)