

Extra Credit #3

A chemical company will manufacture stainless steel barrels to hold toxic liquids. The barrel is a circular cylinder with specified volume V . To minimize the cost, the surface area A (which is proportional to the amount of steel needed) should be a minimum. Determine the radius a and height H of the barrel.

HINT: The volume V is a constant. Begin by setting $V = 1$, and find the ratio $x = H/a$ for which the surface area A is a minimum. Then let V be arbitrary and express a and H in terms of V .