### Practice

You will be computing the volume under the surface \( z = x^2 + y^2 \), above the region \( R \), where \( R \) is the portion of the unit disc in the third and fourth quadrants. That is, \( R \) is the region where \( x^2 + y^2 \leq 1; \ y \leq 0 \).

1) a) Sketch the region \( R \).
   b) Write \( \int \int_R f \ dA \) as a type one integral.
   c) Write \( \int \int_R f \ dA \) as a type two integral.
   d) Compute the volume under the surface \( z = x^2 + y^2 \), above \( R \).