An hourglass is filled with a Newtonian liquid having the dynamic viscosity \( \eta \) and the density \( \rho \). It takes time \( \Delta t \) for a fluid level to drop from \( z_1 \) to \( z_2 \). The hourglass radius is \( R \), the radius of the hole through which the fluid escapes is \( r \) (\( r \ll R \)), and the “length” of the hole is \( h \) (\( h \ll z_1, z_2 \)). Assuming that the fluid flow through the hole occurs at a low Reynolds number, and is well approximated by the circular Poiseuille (pipe) flow, determine the fluid viscosity \( \eta \). Discuss how one might modify the experimental configuration to allow for a more accurate estimate of \( \eta \).