Example of Higher-order Uncertainty Analysis

Determine the uncertainty of the mass flow rate of air through a chocked orifice (see governing equation on the laboratory 1 assignment) and the uncertainty in the Reynolds number of the same flow through a tube with a known diameter (0.5 ± 0.01 inches). Hypothetical values are supplied for the instrument uncertainty as well as from repeated measurements. Be sure to apply an uncertainty tree to help with the analysis.

In class on Thursday I will show the solution and answer questions, but we will not have time for me to work through the entire solution.