Problem 100D

If the gas constant for air is $R = 280 \; m^2/s^2 \; °K$, what is the root mean square velocity of the molecules, C, at 20 $°C$? If the mean free path of the molecules, λ, is $10^{-7} \; m$ at normal pressures and a temperature of 20 $°C$, calculate the dynamic viscosity of air, μ, using the approximate kinetic theory result that $\mu = \rho C \lambda/3$ where ρ is the density. Compare this with a measured value.