Numerically Solving the Lane-Emden Equation

- Employing a numerical integrator (see below), compute and compare the density profiles for polytropes $n = 1.5$ (degenerate/fully convective star) and $n = 3$ (star in radiative equilibrium). In both cases, plot the ratio of the density to the central density (ρ/ρ_c) as a function of the dimensionless quantity $\xi = r/\lambda_n$. Also compute the values of ξ_1 and $dD/d\xi$ at ξ_1, where the density goes to zero. Be sure to show both your plot(s) and the code you used to calculate these profiles.