- Test #1 date: _____

- Poisson equation for $g(r)$

- SSE 2: conservation of momentum

- Try it yourself: estimate the central pressure of the Sun!

- How many equations? How many unknowns?
  - Where does $p(\varrho)$ come from?

- Try it yourself: in a star with mass M, assume that the density increases outwards as a function of r as:

  $$\varrho = \varrho_c \left[1 - (r/R)^2\right]$$

  (a) find m(r);   (b) derive the relationship between M and R;   (c) calculate $\langle \varrho \rangle$.

- What is the *minimal* central pressure?

- Is it justified to assume that stars are in HSE?

- Virial theorem revisited

- Try it yourself: estimate gravitational energy for the above density profile.