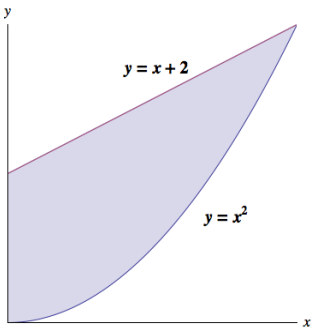
9. [9 points] Consider the region R bounded by the curves $y = x^2$, $y = x + 2$ and the y-axis, where x and y are measured in meters.



a. [5 points] Let T be the solid obtained by rotating the region R about the x-axis. Find a formula involving definite integrals that computes the volume of T.

b. [2 points] The mass density of the solid T is given by the function $\delta(x) = 2 - \sqrt{x}$ kg per m^3. Find a formula involving definite integrals that computes the mass of T.

c. [2 points] Find a formula involving definite integrals that computes the value of $\bar{x}$, the x coordinate of the center of mass of the solid T.