To Add to Homework 7

Use Matlab's `quad` routine to find the following integrals:

- Find the length of the curve below:

$$\vec{r}(t) = \langle t, \ln(t), t\ln(t) \rangle, \quad 1 \le t \le 2$$

  HINT: If you've forgotten the arc length formula, if $\vec{r}(t) = \langle x(t), y(t), z(t) \rangle$ for $a \le t \le b$, then the arc length is:

$$\int_a^b \sqrt{\left(\frac{dx}{dt}\right)^2 + \left(\frac{dy}{dt}\right)^2 + \left(\frac{dz}{dt}\right)^2}\, dt$$

- Evaluate

$$\iiint_E xy\, dV$$

  where E is bounded by the parabolic cylinders $y = x^2$, $x = y^2$ and the planes $z = 0$ and $z = x+y$. Check your method by doing this two different ways- One with Matlab's `triplequad`, and the other by using two functions (like the example in class).