1.) (15 pts. each) Evaluate the following improper integrals. You must make proper use of notation and limits.
   a.) \[ \int_{1}^{\infty} \frac{1}{x^3} \, dx \]
   b.) \[ \int_{0}^{1} \frac{1}{\sqrt{x}} \, dx \]
   c.) \[ \int_{2}^{\infty} \frac{1}{x^2 + 4} \, dx \]
   d.) \[ \int_{1}^{\infty} xe^{-x} \, dx \] (At some point you must use L’Hôpital’s rule on this problem.)