1. (3 points) The region between the $x$-axis and the curve $y = e^{-x}$ on the interval $[0, \infty)$ is revolved around the $x$-axis. Compute the resulting volume.
2. (3 points) Evaluate the following integral. Use proper notation for each step in your work.

\[ \int_{2}^{\infty} \frac{6}{x^3} \, dx \]
3. (2 points) Evaluate the following integral. Use proper notation for each step in your work.

\[ \int_{2}^{6} \frac{dx}{(x - 2)^{3/2}} \]
4. (2 points) Evaluate the following integral. Use proper notation for each step in your work.

$$\int_{3}^{\infty} \frac{10x}{e^x} \, dx$$