Let $I=\int_{0}^{1} e^{-x^{2}} d x$.
Verify that Theorem 1 applies to $I$ and use the Theorem to answer the following.

1. How close will $L_{5000}$ approximate $I$ ? $R_{5000}$ ? $T_{5000}$ ?
2. Find a value of $n$ so that $L_{n}$ approximates $I$ within 0.00001 of the actual value.
3. Repeat \#2 but with $T_{n}$.
