

Let $I = \int_0^1 e^{-x^2} dx$.

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 .