Let $\mathcal{I} = \int_5^{10} \cos\left(\frac{x^2}{3}\right) + x \; dx$

1. Calculate L_{1000} and T_{1000}.

2. How close are these to the actual value of $\mathcal{I}$?

3. Find a value of n so that L_n approximates $\mathcal{I}$ accurate within 0.01.