

Error of Taylor Polynomials

1. Find a bound on $|R_2 f(x)|$ for $f(x) = x \sin^3 x$ for $-1 \leq x \leq 1$.
2. Find B so that $|R_4 \cos x| \leq B$ for all $0 \leq x \leq 2\pi$.
3. Find B so that $|R_{100} e^x| \leq B$ for all $-10 \leq x \leq 10$.
4. Find n so that $|T_n e^x - e^x| \leq 0.01$ for $-1 \leq x \leq 1$.
5. Approximate $\cos(0.1)$ using $T_5 \cos x$ and find a bound on the error.
6. Find n so that $T_n e^x$ approximates $\sqrt[3]{e}$ to four decimal places.