CSE330 - Assignment 06

Answer all the following question

A function is given by $f(x) = e^{0.5x} + \sin x$, which is to be integrated on the interval $[0, 2]$.

1. (2 marks) Evaluate the exact integral $I(f)$.
2. (3 marks) Compute the numerical integral by using the Newton-Cotes formula with $n = 1$ and also find the percentage relative error.
3. (5 marks) Evaluate the numerical integral $C_{n=1,m=4}(f)$ by using the Composite Newton-Cotes formula and also find the percentage relative error.
4. (5 marks) Compute the numerical integral by using the Newton-Cotes formula with $n = 2$ and also find the percentage relative error.