

Answer the questions below. You may answer in the space provided. You may use the back or a separate sheet of paper if you need more space. You are to work in groups of no more than four people. Make sure to enter the names of your groupmates below. You may use a calculator on this assignment.

Name: _____

Section: _____

Group Members: _____

1. (6 points) Approximate

$$\int_0^4 \sqrt{1 + \sqrt{x}} \, dx$$

by finding M_8 and T_8 . You may (but are not required to) give a decimal approximation to four decimal places to your final answers.

2. Consider

$$I = \int_0^{2\pi} e^{\cos x} \, dx.$$

- (a) (2 points) How large must n be such that M_n approximates I to within 10^{-5} ? You may use the fact that for $f(x) = e^{\cos x}$,

$$|f''(x)| \leq e$$

on $[0, 2\pi]$.

- (b) (2 points) How large must n be such that T_n approximates I to within 10^{-5} ?