

Quiz: Approximation Sums and Definite Integrals

Math 140: Calculus I

Instructions. No notes, books, or calculators. Show all work clearly. Answers without supporting work may receive little or no credit.

1. Use right-endpoint rectangles to evaluate the definite integral

$$\int_{-1}^2 x \, dx$$

as the limit of a sequence of approximation sums.

- (a) Divide the interval $[-1, 2]$ into n equal subintervals. Find Δx and the right-endpoint x_i for the i th subinterval.
- (b) Write a summation formula for the right-endpoint approximation A_n .
- (c) Replace the summation with a formula (do not leave sigma notation). Simplify your expression for A_n .
- (d) Take the limit as $n \rightarrow \infty$ to evaluate the definite integral.