MAT 136 (Calculus I) Prof. Swift

In-Class Worksheet: The Definite Integral, Part 2

In this worksheet you will evaluate $\int_0^1 x\,dx$ in two ways.

1. Evaluate $\int_0^1 x\,dx$ using the Geometric Definition.

2. Find the Right Sum that approximates $\int_0^1 x\,dx$, with an arbitrary value of n.

Hints: (1) $R_n = \sum_{i=1}^{n} f(x_i)\Delta x$.

(2) As Gauss supposedly discovered, $1 + 2 + \ldots + n = \sum_{i=1}^{n} i = \frac{n(n+1)}{2}$.

3. Use the Limit Definition with right endpoints to evaluate $\int_0^1 f(x)\,dx = \lim_{n\to\infty} R_n$