

## 1 | Reading

### 1.1 | Definition of a Definite Integral

For each interval  $[x_i, x_{i+1}]$ , we choose  $x_i^*$  in the interval to be the position of the minimum (for lower bound) or maximum (upper bound) value.

## 2 | Problems

### 2.1 | exr1.3

Using the left edge: -8.4375

Summation notation for left edge approximation:

$$\sum_{i=0}^n \underbrace{\frac{b-a}{n}}_{\text{width}} \underbrace{f\left(a + \frac{b-a}{n}i\right)}_{\text{height}}$$

### 2.2 | exr1.4 (in class)

0.21875 using the left estimate

### 2.3 | exr1.5

#### 2.3.1 | left estimate

69.4 feet (add all except last number, because we are stopping at 3.0 seconds in.)

#### 2.3.2 | right estimate

89.6 feet (add the last number and drop the zero from the beginning)

#### 2.3.3 | middle estimate

Not enough information to do it for  $\Delta x = 0.5$ , so I will use  $n = 3$  aka  $\Delta x = 1$