## Math 1552, Integral Calculus Sections 5.2-5.3: The Definite Integral

**1.** (*Applying the Definite Integral*) A marketing company is trying a new campaign. The campaign lasts for three weeks, and during this time, the company finds that it gains customers as a function of time according to the formula:

$$C(t) = 5t - t^2,$$

where t is time in weeks and the number of customers is given in thousands. Using the general form of the definite integral,

$$\int_{a}^{b} f(x)dx = \lim_{n \to \infty} \frac{b-a}{n} \sum_{i=1}^{n} f(x_i^*),$$

calculate the **average** number of customers gained during the three-week campaign.