## Math 1552, Integral Calculus <br> 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:

$$
C(t)=5 t-t^{2}
$$

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

$$
\int_{a}^{b} f(x) d x=\lim _{n \rightarrow \infty} \frac{b-a}{n} \sum_{i=1}^{n} f\left(x_{i}^{*}\right)
$$

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

