4.4: Definite Integrals and Riemann sums

Tips:

- Riemann sums approximate the total *change* of a function based on its derivative.
- A good step for evaluating summation notation is by plugging in all values of the summation index i.

1. Quick exercise: suppose a bee moves with speed $v(t) = 50t$ ft/min. Make a graph of $v(t)$.

2. Exercise with summation notation. Compute the values of (a) $\sum_{i=1}^{4} i$, (b) $\sum_{i=0}^{2} i^2$.

3. With the setup in problem 1, set up a (a) a left Riemann sum, and (b) a right Riemann sum for the total change in position of the bee between $t = 0$ and $t = 2$ minutes with $n = 5$ steps. Can you compute these exactly?

4. Set up left and right Riemann sums for the function $g(t) = 2^t$ over the interval $[-1, 1]$ with 6 subintervals. Calculate their values. Are they equal?