

Worksheet 15

Name:

1. Estimate $\int_0^\pi \cos(t) dt$ using a left-handed Riemann sum with $\Delta t = \frac{\pi}{3}$.

2. Compute the exact value of $\int_0^\pi \cos(t) dt$ using the fundamental theorem of calculus.

3. A potato at a room temperature of 65° F is placed in an oven at time $t = 0$. Assume the temperature of the potato (once it's in the oven) is increasing at a rate of $e^{2t} \frac{^\circ\text{F}}{\text{min}}$.

- (a) Express the temperature $T(t)$ of the potato at time $t = 2$ as an integral.
- (b) Compute the exact value of $T(2)$, the temperature of the potato after 2 minutes