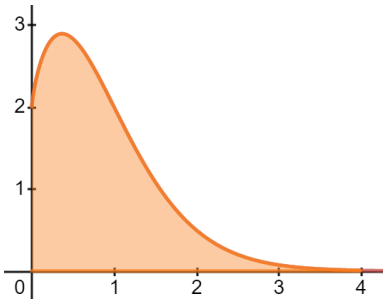
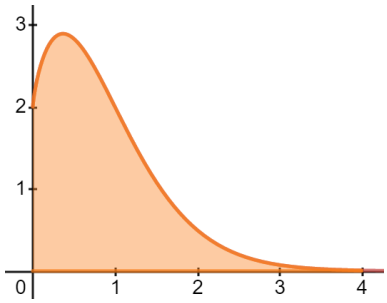
Area Approximation Quiz

Name: _____ Due Date: May 12, 2020

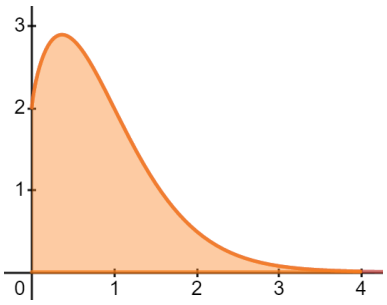
1. Consider the function $f(x) = 2 \cdot x^{-x}$ on the interval $[0, 4]$.

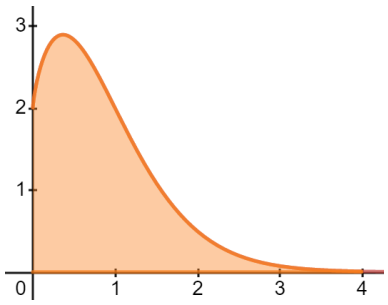




(a) Approximate the area using 8 subintervals and the right endpoint. Is this an over or under-estimation?

(b) Approximate the area using 8 subintervals and trapezoids. Is this an over or under-estimation? Note: $f(0) = 2$





(c) Appriximate the area using 4 subintervals and midpoint.

(d) Write the area as a sum using 100 subintervals . Use a calculator to determine the area with $n = 100$ and say which approximation method you used (right, left, middle, trapezoid).