
Quiz 1

1. Write an expression A_n for the n -step left-endpoint Riemman sum which approximates the area under $y = 5x$ from $x = 0$ to $x = 3$. Then, find the limit of A_n to compute the area under the curve.
2. Check your answer from the problem above using the fundamental theorem of calculus. Then, check your answer again by noting that you are trying to find the area of a right triangle. Be sure to clearly label and justify each part of this problem.
3. Use the formula $|E_T| \leq \frac{M(b-a)^3}{12n^2}$ to find the error in the trapezoidal approximation of $y = 9x^2 - e^{-x}$ over the interval $[0, 2]$ with $n = 3$ trapezoids. Recall M should be chosen to satisfy $|f''(x)| \leq M$ for x in $[0, 2]$.