Solution and Rubric for Quiz 13 (Mon Nov 17)

Problem: Compute the left-endpoint Riemann sum for the function $f(x) = x^2$ on the interval $[1,3]$ with $n = 2$ rectangles. Write your answer as a whole number or a single fraction.

Solution: The interval is $[1,3]$, so using 2 rectangles we divide into subintervals $[1,2]$ and $[2,3]$. Equivalently we have $\Delta x = (b-a)/n = (3-1)/2 = 1$ and so $x_0 = 1$, $x_1 = 2$, $x_2 = 3$.

The left endpoints are $x_0 = 1$ for $[1,2]$ and $x_1 = 2$ for $[2,3]$, so the Riemann sum is

$$L_2 = f(x_0)\Delta x + f(x_1)\Delta x = f(1) \cdot 1 + f(2) \cdot 1 = 1^2 + 2^2 = \boxed{5}$$

Rubric:

- If the final answer is correct, and is supported by clear and correct work: $\boxed{1 \text{ points}}$

- Otherwise: $\boxed{0 \text{ points}}$