

4. (5 points) Using Problems 1, 2, and 3, along with the rules for finite sums in Section 5.2, express

$$S_P = \sum_{k=1}^n f(x_k) \Delta x_k \text{ in terms of } n \text{ without using sigma notation.}$$

5. (4 points) Determine the exact area between the graph of f and the x -axis by taking the limit as $n \rightarrow \infty$ of your answer to Problem 4.