

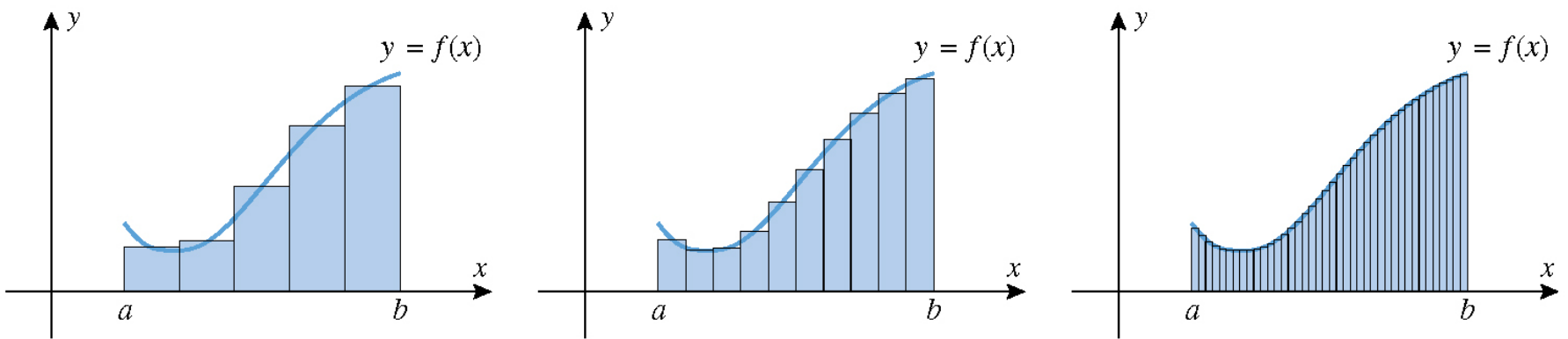
Chapter 6 Integration

6.1 An Overview of Area

6.1.1 THE AREA PROBLEM f is continuous and nonnegative on $[a, b]$. Find the area under the curve and x -axis.

Method 1: Rectangle Method

Divide the interval $[a, b]$ into n subintervals of length $\frac{b-a}{n}$



As n increases, the area of the rectangles approaches the exact area under the curve.

Example 1 $f(x) = 6x + 2$

The Antiderivative Method

Example 2 Find the area $A(x)$ between the graph of
 $f(x) = 2x + 2$ and the interval $[1, x]$