

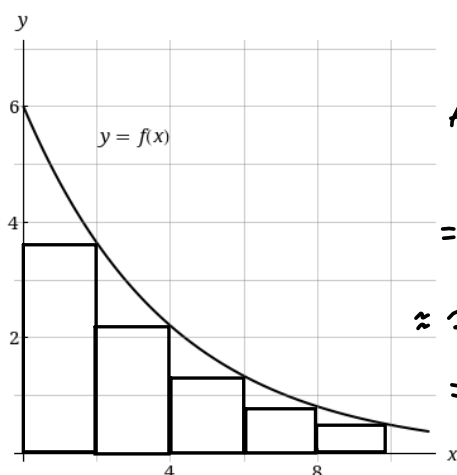
Today, I referred the students to the Chapter 4 Notes and Videos on harryzaims.com.

In them, you will find all the theory and many/most of the exercises presented as examples.

https://harryzaims.com/public_html/201/videos/chapter-04/

Use five rectangles to find a lower estimate of the area under the graph of f .

f is decreasing. Use *right* endpoints for a *lower* estimate.



$$Area \approx \frac{b-a}{n} \sum_{k=1}^n f(x_k)$$

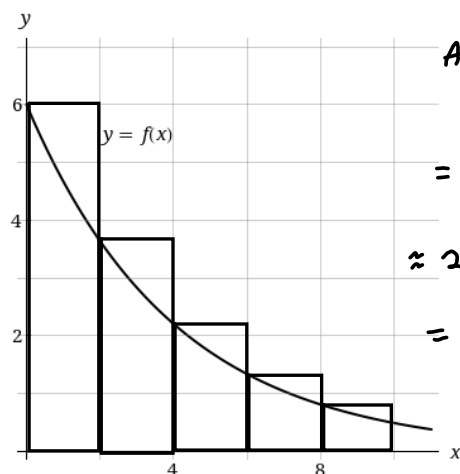
$$= \frac{10-0}{5} \sum_{k=1}^5 f(x_k)$$

$$\approx 2 [3.5 + 2.2 + 1.3 + .7 + .4]$$

$$= 2 [8.1] = 16.2 \approx Area$$

Use five rectangles to find an *upper* estimate of the area under the graph of f .

f is decreasing. For an *upper* estimate, use left endpoints



$$Area \approx \frac{b-a}{n} \sum_{k=1}^n f(x_k)$$

$$= \frac{10-0}{5} \sum_{k=1}^5 f(x_k)$$

$$\approx 2 [6 + 3.7 + 2.2 + 1.3 + .7]$$

$$= 2 [13.9] = 27.8 \approx Area$$

The early 4.1's aren't much fun.

Our goal is Riemann sums:

Left, right, midpoint

Section 4.2, we basically learn how to integrate polynomials up to degree 3

Section 4.3, we cover the Fundamental Theorem of Calculus, Parts I and II.

Both parts of the theorem are covered in the 4.3 Notes and Videos.