Aisle : _____   pg. 354 – 3-11 odd with n=5 and 3 left, 5 right, 7 midpt, 9 left, 11 right, 17, 20

For 3-11 odd, sketch the function f and the interval $[a, b]$ and estimate the area using $n = 5$ rectangles. Sketch the rectangles as well.

3. with left hand estimation $$f(x) = \sin x \, ; [0, \pi]$$	5. with right hand estimation $$f(x) = \frac{1}{x}; [1,2]$$
7. with midpoint estimation $$f(x) = \sqrt{1 - x^2}; [0,1]$$	9. with left hand estimation $$f(x) = e^x; [-1,1]$$

11. with right hand estimation $$f(x) = \sin^{-1} x \, ; [0,1]$$	17. Use simple area formulas from geometry to find the area function $A(x)$ that gives the area between the graph of $f(x)$ and the interval $[a, x]$. Confirm that $A'(x) = f(x)$. $$f(x) = 2x + 2; [1, x]$$

20.

Let $f(x)$ denote a *linear function* that is nonnegative on the interval $[a, b]$. For each value of x in $[a, b]$, define $A(x)$ to be the area between the graph of f and the interval $[a, x]$.

(a) Prove that $A(x) = \frac{1}{2}[f(a) + f(x)](x - a)$.

(b) Use part (a) to verify that $A'(x) = f(x)$.