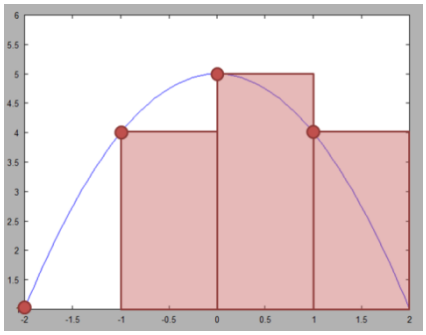
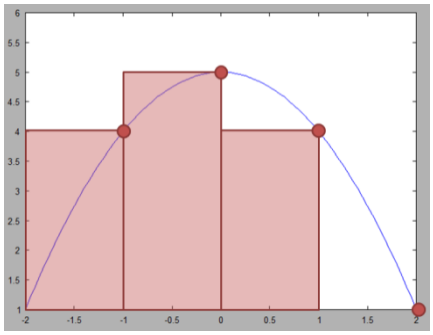
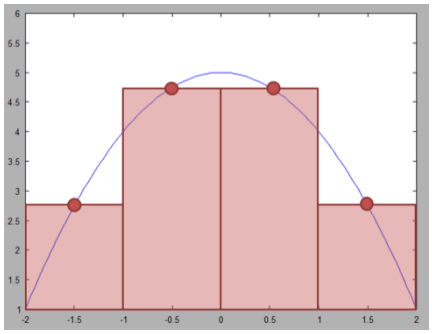
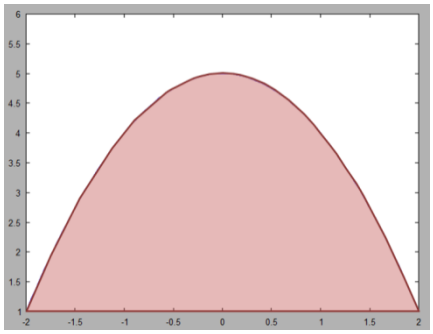
Riemann Sum

The Riemann Sum is an approximation method in which you break a function up into small rectangles and calculate the total area of these rectangles to approximate the area under the curve. As you learned in calculus, taking an integral is just like this, but with infinitely small rectangles. In this problem, you will ask the user to input the number of rectangles to calculate and using the 3 types of Riemann Sum, Left Hand, Right Hand, and Midpoint, you will compare these approximations to the actual integral for Fn1 and Fn2 already computed by quad. For each iteration and for each function Fn1 and Fn2, the width of each rectangle will be different. Using the user input rectangle number, simply divide the difference of the upper and lower bounds by the number of rectangles required.

These Riemann approximations are described below:

Left Hand Riemann Sum	**Right Hand Riemann Sum**
	
Dividing the bounds into equal sizes, you use the left most point of each rectangle to calculate the height of each rectangle	Dividing the bounds into equal sizes, you use the right most point of each rectangle to calculate the height of each rectangle

Midpoint Riemann Sum	**Integral Sum**
	
Dividing the bounds into equal sizes, you use the middle of each delta rectangle to calculate the height of each rectangle. Multiplying each height by the width	Dividing up the bounds into infinitely small rectangles, therefore with only a single height, the sum of these infinitely many rectangles is the exact area under the function.

For more information on Riemann Sums, please refer to your MATH 1431/1432 Textbook.