Calculus Exploration **Name _____**
Area of Rectangles and Definite Integrals **Date _____**

In this exploration, you will develop a relationship between the area of rectangles over [a,b] and the definite integral over [a,b] using your TI-Nspire to help measure the area of the rectangles.

# of rectangles	1	2	3	4	5	6	7	8	9	10	Sum of rectangles
N=1											
N=2											
N=5											
N=10											

Actual Area Under Curve (Integral)

When you drew one rectangles, was that a good approximation for the area under the curve? Why or why not?_____
_____
_____
_____

As you increased the number of rectangles drawn between [a,b], what did you notice about the relationship between the rectangles and the area under the curve?_____
_____
_____

In the last step when you had the calculator calculate the integral from [a.b], which is the actual area under the curve, how was that value different than the area you got from the sum of the rectangles?_____
_____
_____

Describe in your own words what each part of Riemanns Sum stands for.

$$\lim_{\max \Delta x \to \infty} \sum_{i=1}^{\infty} f(x_i)\Delta x = \int_a^b f(x)dx$$ **_____**

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