**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**February 8th, 2013**

**AP Calculus 1, Mrs. Sulkes**

**Area - Practice**

1. Find the area bounded by  , , and the x-axis by:

1. Using 6 right handed rectangles of equal width. Is this an upper sum or lower sum? Sketch the graph. This is an approximation.
2. Using 6 left handed rectangles of equal width. Is this an upper sum or lower sum? Sketch the graph. This is an approximation.
3. Using 6 midpoint rectangles of equal width. Sketch the graph. This is an approximation.
4. Now find the exact area.
5. Set up the sigma notation for the sum of the areas of the rectangles if you used n right-handed rectangles.
6. Then take the limit as 

2. Use the limit process to find the exact area of the region bounded between the graph of the function , , ,and the x-axis. Sketch the region.