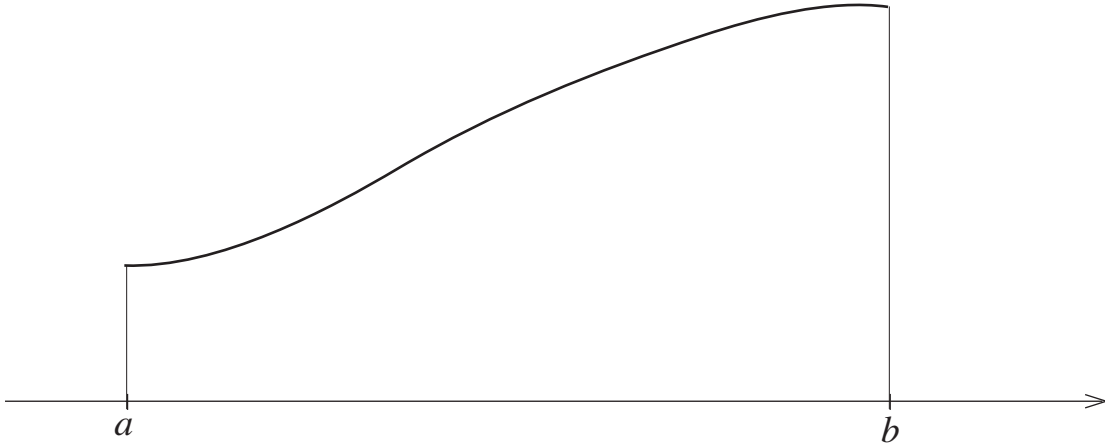


Quiz 7. April 11, 08. Name:

For full credit please: Show all details of your work in neat and well organized form.

1. Let $y = f(x)$ be a function defined for all x with $a \leq x \leq b$. Explain the working definition of $\int_a^b f(x) dx$ that we have used. Your description should use the diagram below and it should not rely on rectangles or limits.



2. Consider the graph of the function $f(x) = x + 1$ from $x = 0$ to $x = 3$. Rotate the region under the graph one complete revolution around the x -axis. Draw a figure that explains what is going on and then determine the volume of the solid that is obtained.

3. Explain what the formula $V = \int_a^b \pi(f(x))^2 dx$ means. Also explain with the aid of a diagram how this formula is derived by the use of the working definition of the definite integral.