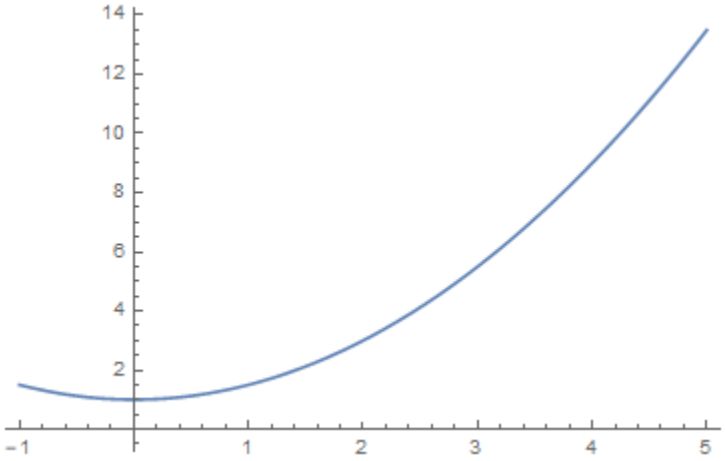
Math 19: Quiz 10 Name:

For full credit you must show your work. Partial credit may be given for incorrect solutions if sufficient work is shown.

For the function $f(x) = \frac{1}{2}x^2 + 1$ plotted below:

1. (5 pts) Approximate the area under the curve on the interval $[0, 4]$ using four left rectangles. Sketch the rectangles on the plot below.



2. (5 pts) Compute the exact area under the curve on the interval $[0, 4]$ by evaluating

$$\int_0^4 \left(\frac{1}{2}x^2 + 1\right) dx.$$

3. (Bonus: 1 pt) Compute the average value of f on $[0, 4]$.