Microsoft Word vs. $\LaTeX$

Here is the equation for the area of a circle:

$$A = \pi r^2 \tag{1}$$
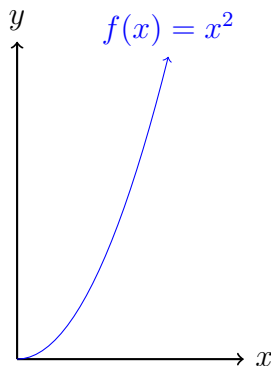
It's a pretty good equation, if I do say so myself.

This is the formula for Riemann sums:

$$\lim_{n \to \infty} \sum_{i=1}^{n} f(x_i^\star)\Delta x = \int_a^b f(x)\,dx. \tag{2}$$

Here's something interesting about equation (2). If you look at (1), you'll notice that if $r = 1$ then $A = \pi$, where $\pi = 3.1415\ldots$.

Let's make a graph!

Before we're done, let's quickly compute some derivatives. Let $f(x) = \sqrt[3]{x}$. Compute $f'(x)$.

Well, we can rewrite the function as $f(x) = x^{\frac{1}{3}}$, and use the normal power rule for derivatives. Here goes:

$$
\begin{aligned}
f'(x) &= \frac{1}{3}x^{-\frac{2}{3}} \\
&= \frac{1}{3\sqrt[3]{x^2}}
\end{aligned}
$$

Looks great!

This document took 10 minutes to write.