1 My first LaTeX experience

This is my *first* document.

This is the second paragraph.

My grocery list includes:

1. milk
2. liquor
3. potato chips
   - ketchup
   - salt and vinegar
4. vegetables

My hockey pool can be found in Table 1.

Participant's Name	Winner	Loser
Nicole	Toronto	Montreal
Jennifer	Tampa Bay	Edmonton
Amanda	Calgary	Boston

Table 1: Participants in my hockey pool

2 Mathematics

Let's consider the function $f_\alpha(x) = \sin\left(\frac{x^{20}}{2x+1}\right)$ and the function

$$f_\beta(x) = x^4 - 9x^3 + 5x^2 + 7x - 2,$$

which we will investigate further. Most important is the product

$$P(x) = f_\alpha(x) \cdot f_\beta(x). \tag{1}$$

We will refer frequently to Equation (1).

Now we need the derivative of $f_\beta(x)$:

$$\begin{aligned}
\frac{d}{dx}[f_\beta(x)] &= \frac{d}{dx}[x^4] - \frac{d}{dx}[9x^3] + \frac{d}{dx}[5x^2] + \frac{d}{dx}[7x] - \frac{d}{dx}[2] \\
&= \frac{d}{dx}[x^4] - 9\frac{d}{dx}[x^3] + 5\frac{d}{dx}[x^2] + 7\frac{d}{dx}[x] - \frac{d}{dx}[2] \\
&= 4x^3 - 9 \cdot 3x^2 + 5 \cdot 2x + 7 \cdot 1 - 0 \\
&= 4x^3 - 27x^2 + 10x + 7. \qquad (2)
\end{aligned}$$

Figure 1: The TARDIS from *Doctor Who*.