Hey world!
This is a first document.

1 First section

Text of material for the first section.

1.1 Subsection of the first section

Text of material for the first subsection.

$$e^{i\pi} + 1 = 0 \tag{1}$$

In subsection 1.1 is equation 1.
A sentence with inline mathematics: $y = mx + c$
A second sentence with inline mathematics: $5^2 = 3^2 + 4^2$
A second paragraph containing display math.

$$y = mx + c$$

Superscripts a^b and subscripts a_b.
Some mathematics: $y = 2\sin\theta^2$
A paragraph about a larger equation:

$$\int_{-\infty}^{+\infty} e^{+x^2} \, dx \tag{2}$$

Solve the following recurrence for $n, k \geq 0$

$$Q_{n,0} = 1 \quad Q_{0,k} = [k = 0];$$
$$Q_{n,k} = Q_{n-1,k} + Q_{n-1,k-1} + \binom{n}{k} \quad \text{for } n, k > 0.$$