$\forall x \in \mathbb{R}, x \leq x+1$.
This sentence should start be on the next line.

$$2^x, 2^{2^x}, 2^{2^{2^{\cdot^{\cdot^{\cdot^{2^x}}}}}}, a_{b_{c_{d_{e_{f_{g_{h_{i_{j_{k_{l_{m_{n_{n_{o_{p_{q_{r_{s_{t_{u_{v_{w_{x_{y_{z}}}}}}}}}}}}}}}}}}}}}}}}}$$

$\arctan(\theta\varphi), \sin(x), \ln(x), \log_{10}(y)$
$(f \circ g)(x) = f(g(x))$.

$$\int f(x)dx, \int_0^{\ln(2)} e^x dx = e^x \Big|_0^{\ln(2)} = e^{\ln(2)} - e^0 = 2 - 1 = 1.$$

Definition 1 (Convergent Sequence)**.** Let $a_n : \mathbb{N} \to \mathbb{R}$ be a sequence. We say that the sequence $\{a_n\}_{n=1}^{\infty}$ converges to a real number L if for any $\epsilon > 0$, there exists $N \in \mathbb{N}$ such that $\forall n \geq N$, $|a_n - L| < \epsilon$.

Theorem 2 (Squeeze Lemma)**.** *Let a_n, b_n, c_n be sequences. If there exists $N \in \mathbb{N}$ such that for all $n \geq N$, $a_n \leq b_n \leq c_n$ and $\lim\limits_{n\to\infty} a_n = \lim\limits_{n\to\infty} c_n = L$, then $\lim\limits_{n\to\infty} b_n = L$.*

Since $-1 \leq \sin(n) \leq 1$ for all n, it follows that $\frac{-1}{n} \leq \frac{\sin(n)}{n} \leq \frac{1}{n}$ for all $n \geq 1$. Since $\lim\limits_{n\to\infty} \dfrac{-1}{n} = \lim\limits_{n\to\infty} \dfrac{1}{n} = 0$, it follows from the Squeeze Lemma that

$$\lim_{n\to\infty} \frac{\sin(n)}{n} = 0.$$

$$f(x) = |x| = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{if } x < 0 \end{cases}.$$

Let $a_{ij} = i + j$, for any $i, j \in \mathbb{N}$. If A is a 2×3 matrix with $A = [a_{ij}]$, then

$$A = \begin{bmatrix} 2 & 3 & 4 \\ 3 & 4 & 5 \end{bmatrix}.$$

The following equation,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \tag{3}$$

is labelled, so I can reference it later. For example, one might say: We can use equation (3) to solve for x in $x^2 - 2x + 3 = 0$.
If I want a numerical list, I can use an enumerated environment. In fact, we could have an enumerated environment within an enumerated environment, as follows:

Definition 4 (Group)**.** The pair $(G, \cdot)$ is a group if:

1. G is a non-empty section
2. $\cdot$ a binary operation on G
   (a) this means that for any two elements $a, b \in G$, $a \cdot b \in G$
   (b) in other words, $\cdot$ is a function from $G \times G$ to G
   (c) in symbols: $\cdot : G \times G \to G$
3. $(G, \cdot)$ is associative
   (a) this means that for any elements $a, b, c \in G$, $a \cdot (b \cdot c) = (a \cdot b) \cdot c$
4. There is an element in G, denoted e, such that for any $a \in G$, $a \cdot e = e \cdot a = a$
5. For each $a \in G$, there exists an element $b \in G$, such that $a \cdot b = b \cdot a = e$