$$1_A = \begin{cases} 1 & \text{if } x \in A, \\ 0 & \text{if } x \notin A. \end{cases} \tag{12}$$

$$n \uparrow \cdots \uparrow n = n \to n \to \cdots \to n \;\; n \text{ times} \tag{13}$$

In the following, note the spacing between the $=$ and the $1^1$, $2^2$, and $3^3$.

$$\begin{aligned} 1 \uparrow 1 &= 1^1 = 1 \\ 2 \uparrow\uparrow 2 &= 2^2 = 4 \\ 3 \uparrow\uparrow\uparrow 3 &= 3^{3^3} = 3 \uparrow\uparrow 3 \uparrow\uparrow 3 = 3^{3^{3^{\cdots}}} \quad 3^{3^3} \text{ threes} \end{aligned} \tag{14}$$

$$\frac{d}{dx} f(x) = \lim_{\Delta x \to 0} \frac{f(x + \Delta x) - f(x)}{\Delta x} \tag{15}$$

$$\mathrm{H_2O}(\ell) \iff \mathrm{H_3O^+(aq)} + \mathrm{OH^-(aq)} \tag{16}$$

$$\Gamma(n+1) \stackrel{\text{def}}{=} \int_0^\infty e^{-t} t^n dt \tag{17}$$

$$\gcd(n, m \mod n); \quad x \equiv y \pmod b; \quad x \equiv y \mod c; \quad x \equiv y \pmod d \tag{18}$$

In the following, note the bold symbols.

$$\begin{aligned} \boldsymbol{\nabla} \cdot \boldsymbol{E} &= \frac{\rho}{\varepsilon_0} \\ \boldsymbol{\nabla} \cdot \boldsymbol{B} &= 0 \\ \boldsymbol{\nabla} \times \boldsymbol{E} &= -\frac{\partial \boldsymbol{B}}{\partial t} \\ \boldsymbol{\nabla} \times \boldsymbol{B} &= \mu_0 \boldsymbol{J} + \mu_0 \varepsilon_0 \frac{\partial \boldsymbol{E}}{\partial t} \end{aligned} \tag{19}$$