Learning LaTeX - Day3

YL-TING

July 25, 2021

Polynomial

$$f(x) = a_n x^n + a_{n-1} x^{n-1} + \cdots + a_1 x + a_0$$

Exponentials

$$f(x) = c_1 e^{r_1 x} + c_2 e^{r_2 x}$$

Special Function

$$\sin(x)$$

$$sin(x)$$

$$\mathrm{fun}(x)$$

$$fun(x)$$

Limit

Display Style :

$$\lim_{x \to \infty} \frac{x^2 + 1}{x^2 - 1} = 1$$

Inline Style :

$$\lim_{x \to \infty} \frac{x^2+1}{x^2-1} = 1$$

$$\lim_{x \to \infty} \frac{x^2 + 1}{x^2 - 1} = 1$$

Summation

Display Style :

$$\sum_{n=1}^{\infty} \frac{1}{n}$$

$$\sum_{\substack{n=0 \\ n \text{ odd}}}^{\infty} a_n x^n$$

Inline Style :

$$\sum_{n=1}^{\infty} \frac{1}{n}$$

$$\sum_{\substack{n=0 \\ n \text{ odd}}}^{\infty} a_n x^n$$

subalign vs substack

subalign

$$\sum_{\substack{n=0 \\ m=0}}^{\infty}$$

substack

$$\sum_{\substack{n=0 \\ m=0}}^{\infty}$$

Integral

Single Integral : $\int$
Double Integral : $\iint$
Triple Integral : $\iiint$
Upper/Lower Limit Location :

$$\int_0^\infty$$

$$\int\limits_0^\infty$$

$$\int_0^\infty$$

$$\int\limits_0^\infty$$

Spacing command

$$\iiiint f(x,y,z)dxdydz$$

$$\iiiint f(x,y,z)\,dx\,dy\,dz$$

$$\iiiint f(x,y,z)\ dx\ dy\ dz$$

$$\iiiint f(x,y,z)\ dx\ dy\ dz$$

$$\iiiint f(x,y,z) \quad dx \quad dy \quad dz$$

$$\int f(x)\,\mathrm{d}x$$

$$\int f(x)\,dx$$

$$\int_a^b f(x)\,dx = F(x)\Big|_a^b$$

$$\int_a^b f(x)\,dx = F(x)\Big|_a^b$$

Derivative

$$\frac{\mathrm{d}f}{\mathrm{d}x}$$

$$\frac{\partial f}{\partial x}$$

Prime (Lagrangian) Notation

$$f'(x)$$

$$f''(x)$$

$$f'''(x)$$

$$f^{(n)}(x)$$

Dot (Newtonian) Notation

$$\dot{x}(t)$$

$$\ddot{x}(t)$$

$$\dddot{x}(t)$$

$$\ddddot{x}(t)$$

Vectors

$$\boldsymbol{r}(t) = \langle x(t), y(t), z(t) \rangle$$

$$\vec{v_1}(t) = \langle x(t), y(t), z(t) \rangle$$

$$\vec{v_{1(}}(t) = \langle x(t), y(t), z(t) \rangle$$

$$\vec{\nabla} \times \vec{E} = -\frac{\partial \vec{B}}{\partial t}$$

$$\oint \vec{E} \cdot d\vec{s} = \frac{d\Phi_B}{dt}$$