Chapter 1

intro

$$\left.\begin{array}{rcl} y & = & c \\ y & = & cx+d \\ y & = & bx^2+cx+b \end{array}\right\}$$

$$\left.\begin{array}{rcl} y & = & c \\ y & = & cx+d \\ y & = & bx^2+cx+b \end{array}\right\} \quad (a.0)$$

$$\sum_{\substack{0\leqslant i \\ 0<j<n}} P(i,j) \tag{1.1}$$

$$\sum_{\substack{0\leqslant i \\ 0<j<n}} P(i,j) \tag{1.2}$$

$$\sqrt{2} < \sqrt[3]{3}$$

$$\sum_{k=1}^{n}, \int_a^b$$

$$\int_a^b$$

$$\widehat{ab} + \widehat{cdef} = \widetilde{xyz}$$

$$\overline{abc...def}$$

$$\underline{abc...def}$$

$$\overbrace{abc...def}^{132}$$

$$\underbrace{abc...def}$$

$$\sum_{i=1}, \sum_{i=1}^{n}$$

$$\prod_{i=1}, \prod_{i=1}^{n}$$

$$\underset{0 \leq j \leq k-1}{argmin}$$

$$\sum_{\substack{0<i<n \\ 0<j<n}} A_{ij}$$

Chapter 2

intro1

2.1 matrix

$$\begin{matrix} 1 & 0 \\ 0 & -1 \end{matrix} \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix} \begin{Bmatrix} 1 & 0 \\ 0 & -1 \end{Bmatrix} \tag{2.1}$$

$$\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix} \begin{Vmatrix} 1 & 0 \\ 0 & -1 \end{Vmatrix} \begin{vmatrix} 1 & 0 \\ 0 & -1 \end{vmatrix} \tag{2.2}$$

$$\mathbf{A}_{m,n} = \begin{pmatrix} a_{11} & \dots & a_{1n} \\ \vdots & \ddots & \dots \\ a_{m1} & \dots & a_{mn} \end{pmatrix} \tag{2.3}$$

$$A = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots \\ a_{m1} & a_{m2} & \dots & a_{mn} \end{bmatrix} \tag{2.4}$$

$$E = \begin{bmatrix} 1 & & & \\ & 1 & & 0 \\ & & 1 & \\ & 0 & & 1 \\ & & & & 1 \end{bmatrix} \tag{2.5}$$

$$\underbrace{\begin{bmatrix} y_1 & 1 & 1 \\ \frac{1}{\sqrt{2}} & 1 & y_2 \\ 1 & 1 & y_3 \end{bmatrix}}_{Y_(3)} \underbrace{\begin{bmatrix} V_1 \\ V_2 \\ V_3 \end{bmatrix}}_{V_(3)} = 0 \tag{2.6}$$

$$\begin{cases} a_{11}x_1 + a_{12}x_2 + \cdots + a_{1n}x_n = c_1 \\ a_{21}x_1 + a_{22}x_2 + \cdots + a_{2n}x_n = c_2 \\ \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots \\ a_{m1}x_1 + a_{m2}x_2 + \cdots + a_{mn}x_n = c_m \end{cases} \tag{2.7}$$

$$\begin{cases} a_0 + a_1x_0 + ... + a_nx_0^n = y_0 \\ a_0 + a_1x_1 + ... + a_nx_1^n = y_1 \\ \cdots \\ a_0 + a_1x_n + ... + a_nx_n^n = y_n \end{cases} \tag{2.8}$$

$$\begin{cases} u_{tt}(x,t) = b(t)\triangle u(x,t-4) \\ q(x,t)f[u(x,t-3)] + te^{-t}\sin^2 x, & t \neq t_k; \\ u(x,t_k^+) - u(x,t_k^-) = c_k u(x,t_k), & k = 1,2,3\ldots; \\ u_t(x,t_k^+) - u_t(x,t_k^-) = c_k u_t(x,t_k), & k = 1,2,3\ldots \end{cases}$$

$$q(x,t) = \begin{cases} (t-k+1)x^2, & t \in \big(k-1, k-\frac{1}{2}\big], \\ (k-t)x^2, & t \in \big(k-\frac{1}{2}, k\big] \end{cases}$$

$$A = \left[\begin{array}{ccc:c} a_{11} & a_{12} & a_{13} & \\ a_{21} & a_{22} & a_{23} & \\ \hdashline a_{31} & a_{32} & a_{33} & \end{array}\right] \tag{2.9}$$

$$F = \begin{pmatrix} A & B \\ C & D \end{pmatrix}$$

$$F = \left(\begin{smallmatrix} A & B \\ C & D \end{smallmatrix}\right)$$