1 矩阵类型和基本用法

$$\begin{matrix} 0 & 1 \\ 1 & 0 \end{matrix} \quad \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix} \quad \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix} \quad \begin{Bmatrix} 0 & 1 \\ 1 & 0 \end{Bmatrix} \quad \begin{vmatrix} 0 & 1 \\ 1 & 0 \end{vmatrix} \quad \begin{Vmatrix} 0 & 1 \\ 1 & 0 \end{Vmatrix}$$

$$\begin{bmatrix} a_{11}^2 & a_{12}^2 \\ a_{21}^2 & a_{22}^2 \end{bmatrix}$$

2 矩阵省略号

$$A = \begin{bmatrix} a_{11} & \dots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{n1} & \dots & a_{nn} \end{bmatrix}_{n \times n}$$

$$\begin{pmatrix} 1 & \frac{1}{2} & \dots & \frac{1}{n} \\ \cdots & \cdots & \cdots & \cdots \\ m & \frac{m}{2} & \dots & \frac{m}{n} \end{pmatrix}$$

3 矩阵的分块

$$\begin{pmatrix} 1 & 0 & & \\ 0 & 1 & & 0 \\ & & 1 & 0 \\ & 0 & 0 & -1 \end{pmatrix}$$

4 三角矩阵

$$\begin{pmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ & a_{22} & \cdots & a_{2n} \\ & 0 & \ddots & \vdots \\ & & & a_{nn} \end{pmatrix}$$

5 行内小矩阵

复数 $z=(x,y)$ 也可用矩阵 $\left(\begin{smallmatrix} x & -y \\ y & x \end{smallmatrix}\right)$

6 array 环境

$$\begin{array}{c|c} \frac{1}{2} & 0 \\ \hline 0 & -\frac{a}{b}c \end{array}$$

7 array 环境构造复杂矩阵

$$\left(\begin{array}{ccc|ccc} a & \cdots & a & b & \cdots & b \\ \vdots & \ddots & \vdots & \vdots & \ddots & \vdots \\ a & \cdots & a & b & \cdots & b \\ \hline & & & c & \cdots & c \\ & 0 & & \vdots & \ddots & \vdots \\ & & & c & \cdots & c \end{array}\right) \begin{array}{l} \left.\begin{array}{l} \\ \\ \\ \end{array}\right\} p \\ \left.\begin{array}{l} \\ \\ \\ \end{array}\right\} q \end{array}$$

$$\underbrace{\qquad}_{m} \quad \underbrace{\qquad}_{n}$$