1 Modes

mathematical equation $(a+b)^2 = \ a^2 + 2ab + b^2$
$(a+b)^2 = a^2 + 2ab + b^2$
we can also write function as

$$(a+b)^2 = a^2 + 2ab + b^2$$

or with

$$a + b = 2 \tag{1}$$
$$a + b = 2 \tag{2}$$
$$a + b = 2 \tag{3}$$

So for in Equation 3 we have an equation and in 3

2 Superscript and Subscript

$$x_i = 10 \tag{4}$$
$$x_{(i,j)}^{2000} = 10 \tag{5}$$
$$1 + 2 = 5 - 2 = 6/2 = 1.5 \times 2 \tag{6}$$
$$sin^2\theta + cos^2\theta = 1 \tag{7}$$

$$\sin^2\theta + \cos^2\theta = \log 10, \text{ This is a simple equation}$$

We can write $\frac{a}{b} = \frac{c}{d}$

$$\frac{a}{\frac{3}{6}} = \frac{c}{d} \tag{8}$$
$$\sqrt{\frac{a}{b}} = \frac{1}{\sqrt{2}} \tag{9}$$
$$\left[\sqrt{\frac{a + 5 \times b}{\frac{2+c}{d}}} = \frac{1}{\sqrt{2}}\right] \tag{10}$$

3 Greek Alphabets

$$\alpha\beta\gamma\delta\Gamma\Delta \tag{11}$$

4 Calculus

$$\lim_{x\to\infty} \frac{1}{x} = 0 \tag{12}$$
$$\int_{10}^{200} xdx = 100 \tag{13}$$
$$\sum_{i=0}^{200} x_i = \prod_{i=0}^{200}(x_i + 1) \tag{14}$$

5 Caligraphy

$$\mathcal{ABCDEF}, \mathfrak{ABCDEF}, \mathbb{ABCDEF} \tag{15}$$

6 Operators

$$1 = 1 < 5 > 2 \neq 4 \leq 8 \geq 16 \tag{16}$$

7 Sets and Vectors

$$A \cup B \cup C \in \mathbb{R} \tag{17}$$

$$\hat{i} \times \hat{j} = \hat{k} \tag{18}$$

$$\vec{A} \cdot \vec{B} = \vec{C} \tag{19}$$

$$\begin{multline} 1+2+3+3+5+1+2+3+ \\ 3+5+1+2+3+3+5+1+ \\ 2+3+3+5+1+2+3+3+ \\ 5+1+2+3+3+5+1+2+ \\ 3+3+5+1+2+3+3+5+ ... = \infty \end{multline} \tag{20}$$

$$\begin{split} \frac{a}{b} &= \frac{5}{10} \\ &= \frac{1}{2} \\ &= 0.5 \end{split} \tag{21}$$

$$a + b + c = 5 \tag{22}$$

$$a = 10 \tag{23}$$

$$-2b + 2c = -5 \tag{24}$$

8 Matrix

$$I = \begin{matrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{matrix}$$

$$I = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$I = \begin{Bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{Bmatrix}$$

$$I = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$