

Formulário de Métodos Quantitativos para a Informática

1. Bases

decimal	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
hexadecimal	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
octal	0	1	2	3	4	5	6	7	10	11	12	13	14	15	16	17
binária	0	1	10	11	100	101	110	111	1000	1001	1010	1011	1100	1101	1110	1111

2. Álgebras de Boole

$$\begin{aligned}
 a \cdot (b+c) &= a \cdot b + a \cdot c; & a + (b \cdot c) &= (a+b) \cdot (a+c); & \bar{\bar{a}} &= a; & a + \bar{a} &= 1; & a+0 &= a; & a+a &= a; \\
 a+1 &= 1; & a \cdot \bar{a} &= 0; & a \cdot 0 &= 0; & a \cdot a &= a; & a \cdot 1 &= a & a + a \cdot b &= a; & a \cdot (a+b) &= a; \\
 \overline{a+b} &= \bar{a} \cdot \bar{b}; & \overline{a \cdot b} &= \bar{a} + \bar{b}; & a + \bar{a} \cdot b &= a+b; & a \cdot (\bar{a}+b) &= a \cdot b; & a \cdot b + \bar{a} \cdot c + b \cdot c &= a \cdot b + \bar{a} \cdot c; \\
 (a+b)(\bar{a}+c)(b+c) &= (a+b)(\bar{a}+c);
 \end{aligned}$$

a	b	a · b	a+b
1	1	1	1
1	0	0	1
0	1	0	1
0	0	0	0

3. Matrizes e Sistemas de Equações Lineares

$$A = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \dots & a_{mn} \end{bmatrix} = [a_{ij}]_{m \times n}, \quad A+B = [a_{ij} + b_{ij}]_{m \times n}, \quad \lambda A = [\lambda a_{ij}]_{m \times n},$$

$$A_{m \times n} \times B_{n \times q} = C = [c_{ij}]_{m \times q}, \quad c_{ij} = \sum_{k=1}^n a_{ik} b_{kj}.$$

$$(A+B)^T = A^T + B^T, \quad (AB)^T = B^T A^T, \quad AI_n = I_n A = A.$$

$$\begin{cases} a_{11}x_1 + a_{12}x_2 + \dots + a_{1n}x_n = b_1 \\ a_{21}x_1 + a_{22}x_2 + \dots + a_{2n}x_n = b_2 \\ \vdots \\ a_{m1}x_1 + a_{m2}x_2 + \dots + a_{mn}x_n = b_m \end{cases}; \quad AX = B \Leftrightarrow \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \dots & a_{mn} \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ \vdots \\ x_n \end{bmatrix} = \begin{bmatrix} b_1 \\ b_2 \\ \vdots \\ b_m \end{bmatrix}$$

4. Estatística Descritiva

$$k = \lceil \log_2(n) \rceil + 1 \quad \bar{x} = \frac{1}{n} \sum_{i=1}^k n_i x_i \quad s^2 = \frac{1}{n-1} \sum_{i=1}^k n_i (x_i - \bar{x})^2$$

5. Erros

$$\Delta \bar{x} = |x - \bar{x}| \quad r_{\bar{x}} = \frac{|x - \bar{x}|}{|\bar{x}|} \quad \varrho_{\bar{x}} = \frac{\delta_{\bar{x}}}{|\bar{x}| - \delta_{\bar{x}}}$$