# $\mathfrak{XITS\ Math}$

$$\pi(n) = \sum_{m=2}^{n} \left\lfloor \left( \sum_{k=1}^{m-1} \left\lfloor (m/k) \middle/ \lceil m/k \rceil \right\rfloor \right)^{-1} \right\rfloor$$

$$\pi(n) = \sum_{k=2}^{n} \left\lfloor \frac{\phi(k)}{k-1} \right\rfloor$$

$$1 + \left( \frac{1}{1-x^2} \right)^3$$

$$1 + \left( \frac{1}{1 - \frac{\frac{x^2}{y^3}}{z^4}} \right)^3$$

$$\frac{a+1}{b} \bigg/ \frac{c+1}{d}$$

$$\left( \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} \right) \left| \phi(x+iy) \right|^2$$

$$\sum_{\substack{0 \le i \le m \\ 0 < j < n}} P(i,j)$$

$$\int_0^3 9x^2 + 2x + 4\, dx = 3x^3 + x^2 + 4x + C \Big]_0^3 = 102$$

$$e^{x+iy} = e^x(\cos y + i \sin y)$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$f(x) = \begin{cases} x, & \text{if } 0 \le x \le \frac{1}{2} \\ 1-x, & \text{if } \frac{1}{2} \le x \le 1 \end{cases}$$

$$\sqrt{1+\sqrt{1+\sqrt{1+\sqrt{1+\sqrt{1+\sqrt{1+\sqrt{1+x}}}}}}}$$

$$\mathbf{S}^{-1}\mathbf{T}\mathbf{S} = \mathbf{dg}(\omega_1, \ldots, \omega_n) = \mathbf{\Lambda}$$

$$\Pr(\, m = n \mid m + n = 3 \,)$$

$$\sin 18^\circ = \frac{1}{4}(\sqrt{5} - 1)$$

$$k = 1.38 \times 10^{-16}\,\mathrm{erg}/{}^\circ\mathrm{K}$$

$$\bar{\Phi} \subset NL_1^*/N = \bar{L}_1^* \subseteq \cdots \subseteq NL_n^*/N = \bar{L}_n^*$$

$$I(\lambda) = \iint_D g(x,y) e^{i\lambda h(x,y)}\,dx\,dy$$

$$\int_0^1 \cdots \int_0^1 f(x_1, \ldots, x_n)\,dx_1 \ldots dx_n$$

$$x_{2m} \equiv \begin{cases} Q(X_m^2 - P_2 W_m^2) - 2S^2 & (m \text{ odd}) \\ P_2^2(X_m^2 - P_2 W_m^2) - 2S^2 & (m \text{ even}) \end{cases} \pmod N$$

$$(1 + x_1 z + x_1^2 z^2 + \cdots) \ldots (1 + x_n z + x_n^2 z^2 + \cdots) = \frac{1}{(1 - x_1 z) \ldots (1 - x_n z)}$$

$$\prod_{j \ge 0} \biggl( \sum_{k \ge 0} a_{jk} z^k \biggr) = \sum_{n \ge 0} z^n \Biggl( \sum_{\substack{k_0, k_1, \ldots \ge 0 \\ k_0 + k_1 + \cdots = n}} a_{0k_0} a_{1k_1} \ldots \Biggr)$$

$$\sum_{n=0}^\infty a_n z^n \qquad \text{converges if} \qquad |z| < \Bigl( \limsup_{n \to \infty} \sqrt[n]{|a - n|} \Bigr)$$

$$\frac{f(x + \Delta x) - f(x)}{\Delta x} \to f'(x) \qquad \text{as } \Delta x \to 0$$

$$\|u_i\| = 1, \qquad u_i \cdot u_j = 0 \quad \text{if } i \ne j$$

$$\prod_{k \ge 0} \frac{1}{(1 - q^k z)} = \sum_{n \ge 0} z^n \Bigg/ \prod_{1 \le k \le n} (1 - q^k). \tag{16$'$}$$

$$
\begin{aligned}
T(n) \le T(2^{\lceil \lg n \rceil}) &\le c(3^{\lceil \lg n \rceil} - 2^{\lceil \lg n \rceil}) \\
&< 3c \cdot 3^{\lg n} \\
&= 3cn^{\lg n}
\end{aligned}
$$

$$
\begin{aligned}
P(x) &= a_0 + a_1 x + a_2 x^2 + \cdots + a_n x^2, \\
P(-x) &= a_0 - a_1 x + a_2 x^2 - \cdots + (-1)^n a_n x^2.
\end{aligned}
\tag{30}
$$

$$
\gcd(u, v) = \gcd(v, u); \tag{9}
$$

$$
\gcd(u, v) = \gcd(-u, v). \tag{10}
$$

$$
\begin{aligned}
\left( \int_{-\infty}^{\infty} e^{-x^2} \, dx \right)^2 &= \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} e^{-(x^2+y^2)} \, dx \, dy \\
&= \int_0^{2\pi} \int_0^{\infty} e^{-r^2} r \, dr \, d\theta \\
&= \int_0^{2\pi} \left( -\frac{e^{-r^2}}{2} \bigg|_{r=0}^{r=\infty} \right) d\theta \\
&= \pi. \qquad (11)
\end{aligned}
$$