$$\boxed{[x]^0 = 1\,;\ [x]^k = \sum_{j=1}^{\lfloor x \rfloor} [\frac{x}{j}]^{k-1}}$$

$$\boxed{([x]-1)^0 = 1;\ ([x]-1)^k = \sum_{j=2}^{\lfloor x \rfloor} ([\frac{x}{j}]-1)^{k-1}}$$

$$\boxed{\Delta[n]^k = \sum_{a_1 \cdot a_2 \cdot \ldots \cdot a_k = n} 1 \quad \Delta[n]^k = \sum_{j|x} \Delta[j]^{k-1} \quad \Delta[n]^1 = 1 \quad \Delta[n]^0 = 1\ if\ n=1, 0\ otherwise \quad \Delta[n]^k = [n]^k - [n-1]^k}$$

$$\boxed{\log[x]^0 = 1\,;\ \log[x]^k = \sum_{j=2}^{\lfloor x \rfloor} \frac{\Lambda(j)}{\log j} \log[\frac{x}{j}]^{k-1}}$$

$$\boxed{[x, f]^0 = 1\,;\ [x, f]^k = \sum_{j=1}^{\lfloor x \rfloor} f(j) [\frac{x}{j}, f]^{k-1}}$$

$$\log[x] = \Pi(x) = \sum_{j=2}^{\lfloor x \rfloor} \frac{\Lambda(j)}{\log j} \qquad \log[x]^2 = \sum_{j=2}^{\lfloor x \rfloor} \sum_{k=2}^{\lfloor \frac{x}{j} \rfloor} \frac{\Lambda(j)}{\log j} \frac{\Lambda(k)}{\log k} \qquad \log[x]^3 = \sum_{j=2}^{\lfloor x \rfloor} \sum_{k=2}^{\lfloor \frac{x}{j} \rfloor} \sum_{m=2}^{\lfloor \frac{x}{jk} \rfloor} \frac{\Lambda(j)}{\log j} \frac{\Lambda(k)}{\log k} \frac{\Lambda(m)}{\log m}$$

$$\boxed{([x]-a)^0 = 1;\ ([x]-a)^k = \sum_{j=0}^{\lfloor x-a \rfloor} ([\frac{x}{j+a}]-a)^{k-1}}$$

$$\boxed{([x, f]-a)^0 = 1;\ ([x, f]-a)^k = \sum_{j=0}^{\lfloor x-a \rfloor} f(j+a) ([\frac{x}{j+a}, f]-a)^{k-1}}$$

$$[x]^{-1} = \sum_{k=0}^{\lfloor \log_2 x \rfloor} (-1)^k ([x]-1)^k$$

$$([x]-a)^k = \sum_{j=0}^{k} \binom{k}{j} ([\frac{x}{a^j}]-(a+1))^{k-j}$$

$$([x]-a)^k = \sum_{j=0}^{k} (-1)^j \binom{k}{j} ([\frac{x}{(a-1)^j}]-(a-1))^{k-j}$$

$$\boxed{\begin{gathered} ([x]-a)^k = \sum_{j=1}^{k} \binom{k}{j} \sum_{m=a}^{\lfloor x^{\frac{1}{k}} \rfloor} ([\frac{x}{m^j}]-(m+1))^{k-j} \\ ([x]-a)^1 = \lfloor x \rfloor - a + 1 \\ ([x]-a)^0 = 1 \end{gathered}}$$

$$\boxed{[x]^z = \sum_{k=0}^{\lfloor \log_2 x \rfloor} \binom{z}{k} ([x]-1)^k}$$

$$\boxed{[x]^z = \sum_{k=0}^{\lfloor \log_2 x \rfloor} \frac{z^k}{k!} \log[x]^k}$$

$$\boxed{\frac{\partial}{\partial z}[x]^z = \sum_{k=0}^{\lfloor \log_2 x \rfloor - 1} \frac{z^k}{k!} \log[x]^{k+1}}$$

$$\boxed{\log[x] = \lim_{z \to 0} \frac{[x]^z - 1}{z}}$$

$$\log[x] = \sum_{k=1}^{\lfloor \log_2 x \rfloor} \frac{(-1)^{k+1}}{k} ([x] - 1)^k$$

$$\boxed{\log[x] = \frac{\partial}{\partial z} [x]^z \; at \; z = 0}$$

$$\boxed{\log[x] = \operatorname*{Res}_{z=0} \frac{[x]^z}{z^2}}$$

$$\boxed{(\log[x])^k = \frac{\partial^k}{\partial z^k} [x]^z \; at \; z = 0}$$

$$\boxed{\log[x]^k = k! \operatorname*{Res}_{z=0} \frac{[x]^z}{z^{k+1}}}$$

$$\log[x]^0 = 1 \; ; \; \log[x]^k = \sum_{j=2}^{\lfloor x \rfloor} \frac{\Lambda(j)}{\log j} \log[\frac{x}{j}]^{k-1}$$

$$[x]^z = \sum_{k=0}^{\lfloor \log_2 x \rfloor} \frac{z^k}{k!} \log[x]^k$$

$$[100]^z = \sum_{k=0}^{\lfloor \log_2 100 \rfloor} \frac{z^k}{k!} \log[100]^k = 1 + \frac{428}{15} z + \frac{16289}{360} z^2 + \frac{331}{16} z^3 + \frac{611}{144} z^4 + \frac{67}{240} z^5 + \frac{7}{720} z^6$$

$$\boxed{[x]^z = \prod_\rho (1 - \frac{z}{\rho})}$$

$$\boxed{[x]^z = \lfloor x \rfloor \cdot \prod_\rho (1 - \frac{z-1}{\rho-1})}$$

$$\boxed{\log[x] = -\sum_\rho \frac{1}{\rho}}$$

$$[x]^{-1} = \prod_\rho (1 + \frac{1}{\rho})$$

$$[x]^0 = 1 = \prod_\rho (1 - \frac{0}{\rho})$$

$$[x]^1 = \lfloor x \rfloor = \prod_\rho (1 - \frac{1}{\rho})$$

$$[x]^2 = D(x) = \prod_\rho (1 - \frac{2}{\rho})$$

$$\boxed{([x]-a)^0=1;\ ([x]-a)^k=\sum_{j=0}^{\lfloor x-a\rfloor}([\frac{x}{j+a}]-a)^{k-1}}$$

$$\boxed{C_k(x,a)=a^{-k}([x\,a^k]-(a+1))^k}$$

$$([n]-a)^0=1$$

$$([n]-a)^k=\sum_{j=0}^{k}\binom{k}{j}\left(\left[\frac{n}{a^j}\right]-(a+1)\right)^{k-j}$$

$$\log[x] = \sum_{j=2}^{\lfloor x \rfloor} \sum_{k=0}^{\lfloor \log_2 x \rfloor} \frac{B_k}{k!} \log\left[\frac{x}{j}\right]^k$$

$$\log x = \sum_{k=0}^{\lfloor \log_2 x \rfloor} (x-1) \frac{B_k}{k!} (\log x)^k$$

$$\log[x]^a = \sum_{j=2}^{\lfloor x \rfloor} \sum_{k=0}^{\lfloor \log_2 x \rfloor} \frac{B_k}{k!} \log\left[\frac{x}{j}\right]^{(k+a)}$$

$$(\log x)^a = \sum_{k=0}^{\lfloor \log_2 x \rfloor} (x-1) \frac{B_k}{k!} (\log x)^{k+a}$$