$$\mathbb{R}/2\pi\mathbb{Z}\underset{m}{\triangle}\mathbb{R} \ni {}^t\mathcal{D}_n = \sum_{|k|\leqslant n} e^{ikt} = \sum_{|k|\leqslant n} {}^t\chi_k = {}^t\chi_n + {}^t\chi_{n-1} + \cdots + {}^t\chi_1 + {}^t\chi_0 + {}^t\chi_{-1} + \cdots + {}^t\chi_{1-n} + {}^t\chi_{-n}$$

$$ {}^t\mathcal{D}_n = {}^{-t}\mathcal{D}_n \text{ even}$$

$$ {}^t\mathcal{D}_n = \overline{{}^t\mathcal{D}_n} = {}^{-t}\mathcal{D}_n$$

$$\int_{t/2\pi}^{-\pi|\pi} {}^t\mathcal{D}_n = 1 = \int_{t/\pi}^{0|\pi} {}^t\mathcal{D}_n$$

$$\int_{t/2\pi}^{-\pi|\pi} {}^t\mathcal{D}_n = \sum_{|k|\leqslant n} \int_{t/2\pi}^{-\pi|\pi} {}^t\chi_k = \sum_{|k|\leqslant n} {}^0\delta_k = 1$$

$$\bigwedge_{|t|\leqslant\pi/2} {}^{2t}\mathcal{D}_n = \frac{{}^{(2n+1)\,t}\mathfrak{s}}{{}^t\mathfrak{s}}$$

$$\sum_{0\leqslant k\leqslant n} e^{2ikt} = \sum_{0\leqslant k\leqslant n} {}^{2it}\mathfrak{e}^k = \frac{1-{}^{2it}\mathfrak{e}^{n+1}}{1-{}^{2it}\mathfrak{e}} = \frac{1-{}^{2it\,(n+1)}\mathfrak{e}}{1-{}^{2it}\mathfrak{e}} = \frac{{}^{-it}\mathfrak{e}-{}^{i\,(2n+1)\,t}\mathfrak{e}}{{}^{-it}\mathfrak{e}-{}^{it}\mathfrak{e}} = \frac{{}^t\mathfrak{c}-i{}^t\mathfrak{s}-{}^{(2n+1)\,t}\mathfrak{c}-i{}^{(2n+1)\,t}\mathfrak{s}}{-2i{}^t\mathfrak{s}}$$

$$\sum_{0\leqslant k\leqslant n} e^{-2ikt} = \frac{{}^t\mathfrak{c}+i{}^t\mathfrak{s}-{}^{(2n+1)\,t}\mathfrak{c}+i{}^{(2n+1)\,t}\mathfrak{s}}{2i{}^t\mathfrak{s}}$$

$${}^{2t}\mathcal{D}_n + 1 = \sum_{0\leqslant k\leqslant n}\left(e^{2ikt}+e^{-2ikt}\right) = \frac{{}^t\mathfrak{c}-i{}^t\mathfrak{s}-{}^{(2n+1)\,t}\mathfrak{c}-i{}^{(2n+1)\,t}\mathfrak{s}}{-2i{}^t\mathfrak{s}} + \frac{{}^t\mathfrak{c}+i{}^t\mathfrak{s}-{}^{(2n+1)\,t}\mathfrak{c}+i{}^{(2n+1)\,t}\mathfrak{s}}{2i{}^t\mathfrak{s}}$$

$$= \frac{2i{}^t\mathfrak{s}+2i{}^{(2n+1)\,t}\mathfrak{s}}{2i{}^t\mathfrak{s}} = 1 + \frac{{}^{(2n+1)\,t}\mathfrak{s}}{{}^t\mathfrak{s}}$$