$$\sin 2\pi t = \sum_{n=-\infty}^{+\infty} c_n e^{j\frac{2\pi n}{T}t}$$

$$= c_{-1} e^{j-2\pi t} + c_1 e^{j2\pi t}$$

$$= \frac{1}{2} e^{j\frac{\pi}{2}} e^{j\cdot -2\pi t} + \frac{1}{2} e^{j\frac{-\pi}{2}} e^{j2\pi t}$$

$$= \frac{1}{2} e^{j\left(-2\pi t + \frac{\pi}{2}\right)} + \frac{1}{2} e^{j\left(2\pi t - \frac{\pi}{2}\right)}$$