

Find the Fourier transform of the function  $g(t) = \begin{cases} 2, & -3 < t < 1 \\ 0, & \text{otherwise} \end{cases}$ . [105 南大電機 7]

$$[\text{解}] \int_{-\infty}^{\infty} g(t)e^{-i\omega t} dt = \int_{-3}^1 2e^{-i\omega t} dt = \frac{2}{-i\omega} \cdot e^{-i\omega t} \Big|_{-3}^1 = \frac{2}{-i\omega} (e^{-i\omega} - e^{i3\omega})$$



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