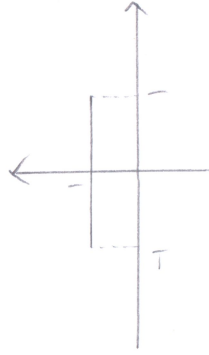
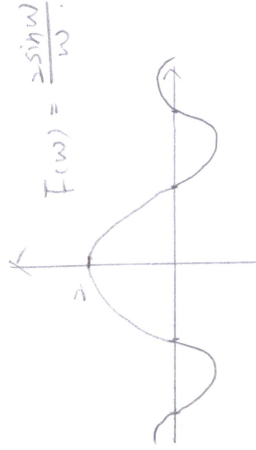


10.

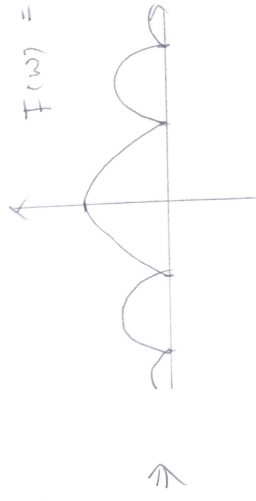


$$F[f(x)] = \int_{-\infty}^{\infty} f(x) e^{-i\omega x} dx = \int_{-1}^1 e^{-i\omega x} dx$$

$$= \frac{2 \sin \omega}{\omega}$$



$$F(\omega) = \left| \frac{2 \sin \omega}{\omega} \right|$$



光學中的狹縫繞射現象

11.

Laplace transform:  $\mathcal{L}[f(t)] = \int_0^{\infty} f(t) e^{-st} dt$ , 針對在時間  $0 \sim \infty$  間轉換Fourier transform:  $F[f(x)] = \int_{-\infty}^{\infty} f(x) e^{-i\omega x} dx$ , 時間  $-\infty \sim \infty$  間轉換Fourier sine transform:  $\mathcal{F}_s[f(x)] = \sqrt{\frac{2}{\pi}} \int_0^{\infty} f(x) \sin \omega x dx$ , 奇函數可簡化為 Fourier sine transformFourier cosine transform:  $\mathcal{F}_c[f(x)] = \sqrt{\frac{2}{\pi}} \int_0^{\infty} f(x) \cos \omega x dx$ , 偶函數可簡化為 Fourier cosine transform

(續寫轉背頁)