

4.6

(1) $\Omega = 100 \text{ rad/s}$, $T = \frac{2\pi}{\Omega} = \frac{\pi}{50} \text{ s}$

(3) $\Omega = \frac{\pi}{2} \text{ rad/s}$, $T = \frac{2\pi}{\Omega} = 4 \text{ s}$

4.7

(a) $T = 4$, $\Omega = \frac{2\pi}{T} = \frac{\pi}{2} \text{ rad/s}$

由 $F_n = \frac{1}{T} \int_{-\frac{T}{2}}^{\frac{T}{2}} f(t) e^{-jn\Omega t} dt = \frac{1}{4} \int_{-2}^2 f(t) e^{-jn\frac{\pi}{2} t} dt = \frac{1}{4} \int_{-1}^1 1 \cdot e^{-jn\frac{\pi}{2} t} dt$

$= \frac{1}{4} \cdot \frac{2}{-jn\pi} e^{-jn\frac{\pi}{2} t} \Big|_{-1}^1$

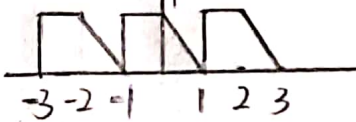
$= \frac{1}{-2jn\pi} (e^{-jn\frac{\pi}{2}} - e^{jn\frac{\pi}{2}})$

$= \frac{1}{-2jn\pi} e^{-jn\frac{\pi}{2}} + \frac{1}{2jn\pi} e^{jn\frac{\pi}{2}}$, $n=0, \pm 1, \pm 2, \dots$

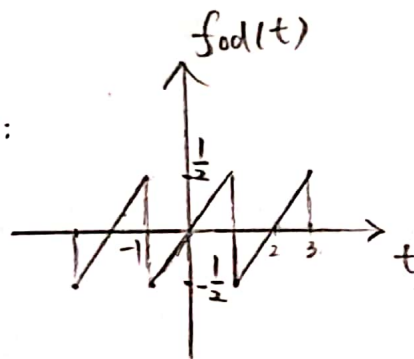
$= \frac{1}{4} \cdot \frac{2}{-jn\pi} e^{-jn\frac{\pi}{2}} \Big|_{-1}^1$

4.9

(a) $f_1(-t)$, $f_1(-t)$



奇分量 $f_{od}(t) = \frac{1}{2} [f(t) - f(-t)]$:



偶分量 $f_{ev}(t) = \frac{1}{2} [f(t) + f(-t)]$:

