

4.6 (1) (3)

(1)  $e^{j100t}$  的  $\omega = 100 \text{ rad/s}$ , 故  $T = \frac{2\pi}{\omega} = \frac{2}{50} \text{ s}$

(3)  $\cos(2t) + \sin(4t)$ ,  $\omega_1 = 2 \text{ rad/s}$ ,  $\omega_2 = 4 \text{ rad/s}$

故  $\omega = 2 \text{ rad/s}$ ,  $T = \pi \text{ s}$

4.7 (a) 解: 由图知  $T = 4$ , 故  $\omega = \frac{2\pi}{T} = \frac{\pi}{2}$

$$\begin{aligned} \text{则 } F_n &= \frac{1}{T} \int_{-\frac{T}{2}}^{\frac{T}{2}} f(t) e^{-jnt} dt = \frac{1}{4} \int_{-2}^2 f(t) e^{-jnt} dt \\ &= \frac{1}{4} \int_{-1}^1 e^{-jnt} dt = n \frac{1}{\pi} \sin\left(\frac{n\pi}{2}\right), \quad n=0, \pm 1, \pm 2 \end{aligned}$$

4.9 (a)

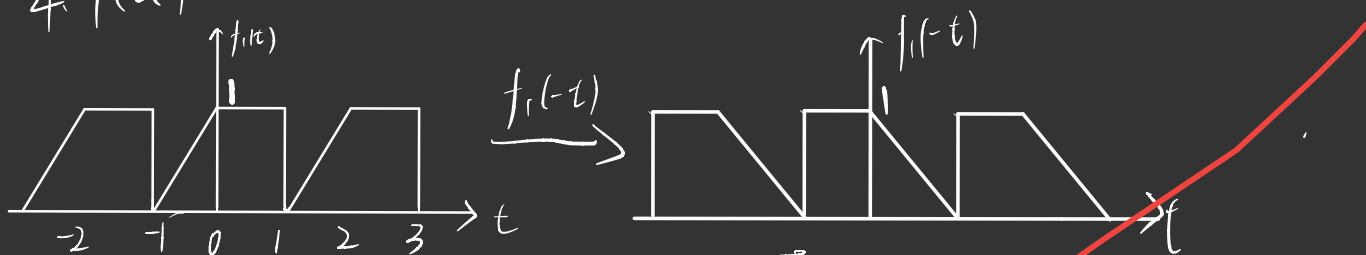


图 9-5

故奇分量  $f_{od} = \frac{1}{2}[f_1(t) - f_1(-t)]$        $f_{id} = \frac{1}{2}[f_1(t) + f_1(-t)]$

其图象为:

