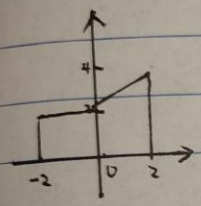
1.5(12). $f_2(k)=\cos(\frac{3}{4}\pi k+\frac{\pi}{4})+\cos(\frac{\pi}{3}k+\frac{\pi}{6})$

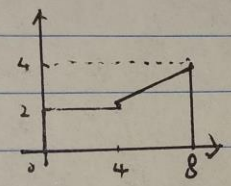
$\beta_1=\frac{3\pi}{4}$ $N_1=\frac{2\pi}{\beta}=\frac{8}{3}$ ∴ N为 N_1和N_2的最小公倍数 24.

$\beta_2=\frac{\pi}{3}$ $N_2=\frac{2\pi}{\beta}=6$

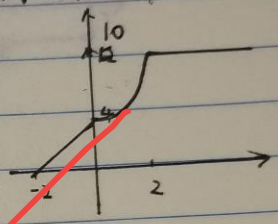
1.6(6) $f(t)$



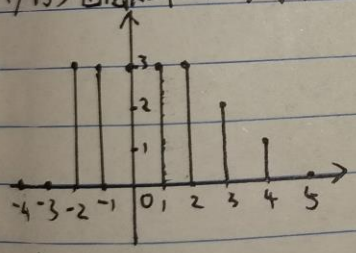
$f(0.5t-2)$



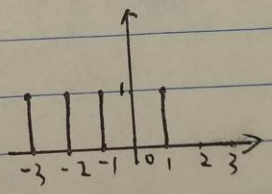
(8) $\int_{-\infty}^{t} f(x)dx$



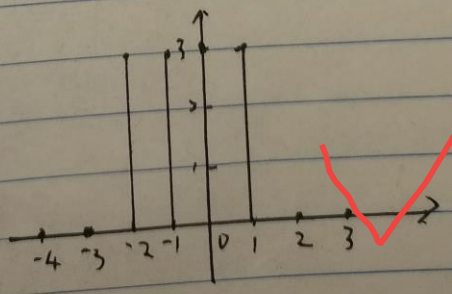
1.7(5) 由图知$f(-k+2)$图像



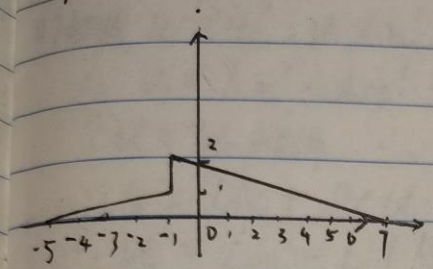
$\varepsilon(-k+1)$图像为



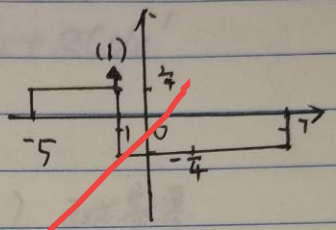
∴ $f(-k+2)\varepsilon(-k+1)$的图像为



1.9 $f(t)$ 的图像为



$\frac{df(t)}{dt}$ 的图像为



1.10

(3) $\int_{-\infty}^{+\infty} \frac{\sin(\pi t)}{t} \delta(t)\,dt = \lim_{t=0} \frac{\sin(\pi t)}{t} = \lim_{t\to 0} \frac{\pi t}{t} = \pi$

(7) $\int_{-\infty}^{\infty} (t^3+2t^2-2t+1)\,\delta'(t-1)\,dt = \left.\frac{-d(t^3+2t^2-2t+1)}{dt}\right|_{t=1} = -5$