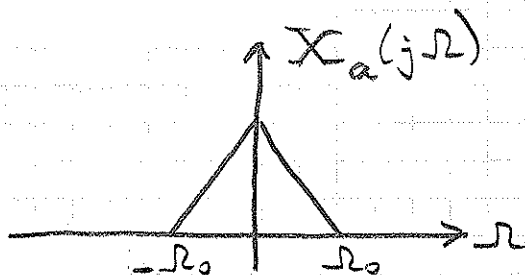


Quiz

① Let $X_a(j\Omega)$ be the CTFT of $x_a(t)$:



We sample $x_a(t)$ with $\Omega_s = 4\Omega_0$ which results in $x_p(t)$.
Plot $X_p(j\Omega)$.
↳ CTFT of $x_p(t)$

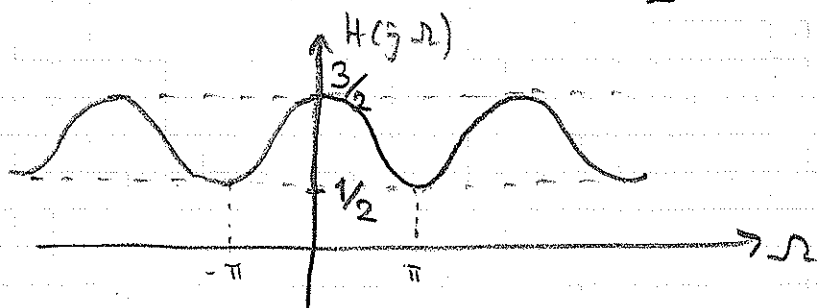
② Let $h[n] = \left\{ \frac{1}{4}, \underset{\substack{\uparrow \\ n=0}}{1}, \frac{1}{4} \right\}$. Calculate the corresponding freq-response.
↳ and plot

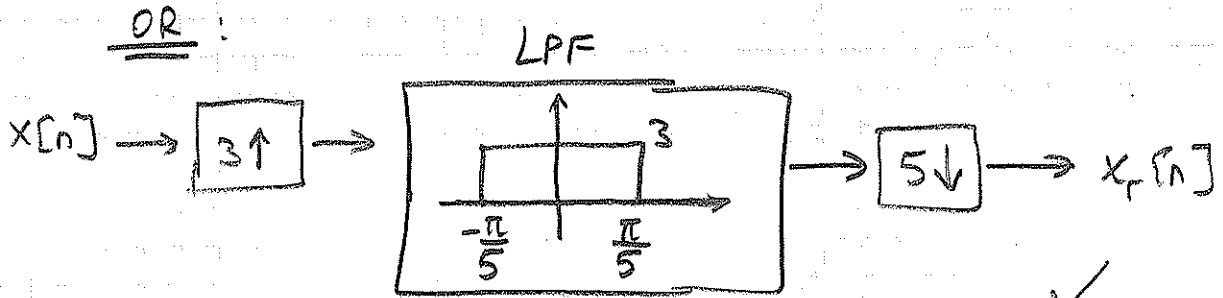
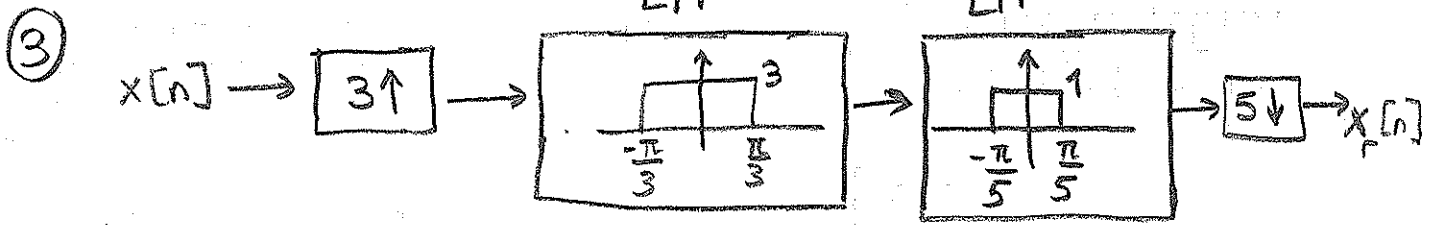
③ Draw the block-diagram of the system which rescales $x[n]$ by $\alpha = \frac{3}{5}$

Answers

$$\begin{aligned} \text{②: } H(j\Omega) &= \frac{1}{4} \cdot e^{-j\Omega} + 1 + \frac{1}{4} \cdot e^{j\Omega} \\ &= 1 + \frac{1}{4} (e^{j\Omega} + e^{-j\Omega}) \end{aligned}$$

$$H(j\Omega) = 1 + \frac{1}{4} \cdot 2\cos(\Omega) = 1 + \frac{1}{2} \cos(\Omega) \checkmark$$





35 ✓

