

b) $x[n] = \cos\left(\frac{\pi}{2}n\right)$ was obtained by sampling analog signal $x(t) = \cos(\Omega t)$ at $F_s = 100$ Hz. What are 2 possible values of Ω ??

$$t = \frac{n}{F_s} \quad t = \frac{n}{100}$$

$$\omega_1 = \frac{\pi}{2} (100t)$$

$$n = F_s t \\ n = 100t$$

$$= 50\pi t$$

$$\omega_1 = \boxed{50\pi}$$

$$\omega_1 = 50\pi$$

$$\omega_2 = \frac{\pi}{2} + \left(\frac{4\pi}{2}\right) (100t) \\ \Rightarrow \frac{5\pi}{2} (100t)$$

$$= 250\pi$$

$$\omega_2 = \boxed{250\pi}$$

c) What is the ideal sampling frequency of x

$$\boxed{F_N = \frac{\omega}{2\pi}}$$