

Homework 5

1. In Haar wavelet, $h(0) = \frac{1}{\sqrt{2}} = h(1)$, and $h(n) = 0$ for all $n \neq 0, 1$. Verify that

$$|H(\gamma)|^2 + |H(\gamma + \frac{1}{2})|^2 = 2.$$

2. Problem 4.5.2 (i), page 318.
3. Let $\tilde{z}(n) = \overline{z(-n)}$. Show that $\hat{\tilde{z}}(\gamma) = \overline{\hat{z}(\gamma)}$. Further, assume $y(n) = (-1)^n z(n)$. Show that $\hat{y}(\gamma) = \hat{z}(\gamma + \frac{1}{2})$.
4. Problem 3.1.2, page 188
5. Problem 3.1.3, page 189