Decoding

$$m = \begin{pmatrix} 5 \\ 11 \\ 0 \\ 4 \end{pmatrix} \rightarrow m(x) = 5 + 11x + 4x^3$$

(1) $h_i = m(w^{1+2(i-1)})$

$h_1 = m(w) \approx 9.95 + 10.6i$

$h_2 = m(w^3) \approx 0.05 + 10.6i$

$h_3 = m(w^5) \approx 0.05 - 10.6i$

$h_4 = m(w^7) \approx 9.95 - 10.6i$

(2) $v = \pi(h) = \begin{pmatrix} 9.95 + 10.6i \\ 0.05 + 10.6i \end{pmatrix} \approx v$