1. Decode 110110110001000 using the parity check matrix for the BCH code described in class. 

2. The weight enumerator for the nonlinear binary Nordstrom-Robinson code of length 16 is $W_C(z) = 1 + 112z^6 + 30z^8 + 112z^{10} + z^{16}$. If we pretend that the code is linear, use the theorem from class to show that $W_{C^\perp} = W_C$. 

3. Construct an $8 \times 8$ Hadamard matrix and use that matrix to decode 01101000. 

4. Find an orthogonal array with 4 rows and 9 columns. 

5. Let $V(n, 2)$ be the binary vector space of dimension $n$. Show that two hyperplanes (subspaces of dimension $n - 1$) intersect in a subspace of dimension $n - 2$. 