

Homework 13: (Chapter 7 Linear Codes)

Chapter 7 Exercises: 7.1, 7.2, 7.3 (12 points)

Exercise 7.1 (4%)

If C is a linear code, with generator matrix G and parity-check matrix H , find a generator matrix \bar{G} and a parity-check matrix \bar{H} for the extended code \bar{C} . (You can consider $C = H_7$)

Exercise 7.2 (4%)

If $C_1, C_2 \in V$ are linear codes, with generator matrices G_1, G_2 and parity-check matrices H_1, H_2 , explain how to find a generator matrix for $C_1 + C_2$ and a parity-check matrix for $C_1 \cap C_2$.

Exercise 7.3 (4%)

The matrices G_1 and G_2 in Example 7.19 generate equivalent codes C_1 and C_2 . Are these codes equal or distinct?