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Problem 1 Exercise 71.

Problem 2 Show that the binary Golay code ($[23, 12, 7]$ -code) is perfect.

Problem 3 Exercise 111.

Problem 4 Does there exist a code with length $n = 9$, dimension $k = 2$ and distance $d = 5$?

Problem 5 Find an upper and lower limit for a code with $n = 9$ and $d = 5$.

Problem 6 Find an upper limit for the number of elements in a linear code with $n = 6$ og $d = 3$.

Problem 7 Exercise 87.

Problem 8 Exercise 91 a) og b).

Problem 9 Show that $\mathbb{Z}/(n) = \mathbb{Z}_n$ is not a field if n is not a prime (Exercise 150).

Problem 10 What is $\text{Char}(\mathbb{F}_4)$?

Problem 11 Exercise 151 a), b) og c).

Problem 12 Exercise 156, 157 og 158.

Problem 13 Exercise 160, 161.

Problem 14 1) Write $f(x) = x^3+x^2+x+1 \in \mathbb{F}_2[x]$ as a product of irreducible polynomials.
2) Is $x^4 + x + 1 \in \mathbb{F}_2[x]$ reducible or irreducible?