Exercises on complex matrices; fast Fourier transform

Problem 26.1: Compute the matrix F_2.

Problem 26.2: Find the matrices D and P used in the factorization:

$$F_4 = \begin{bmatrix} I & D \\ I & -D \end{bmatrix} \begin{bmatrix} F_2 & \\ & F_2 \end{bmatrix} P$$

Hint: D is created using fourth roots, not square roots, of 1. Check your answer by multiplying.

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