## 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:

$$
F_{4}=\left[\begin{array}{rr}
I & D \\
I & -D
\end{array}\right]\left[\begin{array}{ll}
F_{2} & \\
& F_{2}
\end{array}\right] P
$$

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

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### 18.06SC Linear Algebra

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