

Exercises

- (1) If A is a complex 5×5 matrix with characteristic polynomial $f = (x - 2)^3(x + 7)^2$ and minimal polynomial $p = (x - 2)^2(x + 7)$, what is the Jordan form for A (up to permutation of the blocks)?
- (2) Let A be the 4×4 real matrix

$$\begin{bmatrix} 1 & 1 & 0 & 0 \\ -1 & -1 & 0 & 0 \\ -2 & -2 & 2 & 1 \\ 1 & 1 & -1 & 0 \end{bmatrix}$$

- (a) Prove that the characteristic polynomial for A is $x^2(x - 1)^2$.
- (b) Calculate the minimal polynomial for A .