

M308D HW 8 answers

Sec 4.4

22. $p(t) = -t^3 + 2t^2 + t - 2$, $p(A) = -A^3 + 2A^2 + A - 2I = 0$

Sec 4.5

14. $p(t) = -(t-1)^3$, $\lambda = 1$ is the only eigenvalue, and corresponding eigenvectors are $x_1 \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$. So alg multiplicity = 3, and geo multiplicity = 1.

Sec 4.7

2. $S = \begin{bmatrix} 1 & -1 \\ 1 & 1 \end{bmatrix}$, $S^{-1}AS = \begin{bmatrix} 0 & 0 \\ 0 & 2 \end{bmatrix}$, $A^5 = S^{-1}A^5S = \begin{bmatrix} 16 & -16 \\ -16 & 16 \end{bmatrix}$.