

MATH 2130 LINEAR ALGEBRA
HOMEWORK 14
DUE 2025 DECEMBER 7

PROBLEM 1 (P7)

Use any method we have seen to compute

$$\begin{vmatrix} 1 & 1 & 3 & 0 \\ 2 & 1 & 0 & -2 \\ 3 & 3 & -2 & 1 \\ 1 & 1 & 1 & 1 \end{vmatrix}.$$

PROBLEM 2 (P8)

Find the characteristic polynomial, eigenvalues, and associated eigenvectors for the matrix

$$\begin{bmatrix} 1 & -7 \\ 0 & 6 \end{bmatrix}.$$

PROBLEM 3 (P8)

Find the characteristic polynomial, eigenvalues, and associated eigenvectors for the matrix

$$\begin{bmatrix} 1 & 1 \\ -6 & 6 \end{bmatrix}.$$

PROBLEM 4 (P8)

Find the characteristic polynomial, eigenvalues, and associated eigenvectors for the matrix

$$\begin{bmatrix} 4 & 4 & -1 \\ 1 & 1 & 1 \\ 3 & 3 & 2 \end{bmatrix}.$$

PROBLEM 5 (P8)

Find the characteristic polynomial, eigenvalues, and associated eigenvectors for the matrix

$$\begin{bmatrix} 0 & 0 & 2 \\ 0 & 1 & 2 \\ 0 & 2 & 4 \end{bmatrix}.$$