

Math 307, Section E
Professor Lieberman
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PARTIAL SOLUTIONS TO PRACTICE FINAL EXAM

Here are the solutions to problems 2, 3, 6, and 7 on the practice exam.

2. A basis is

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

3. The linear transformation T is given by

$$T(\vec{x}) = \begin{bmatrix} -4 & 3 \\ 1 & 0 \end{bmatrix} \vec{x}.$$

6. The vectors are

$$\begin{bmatrix} 2/3 \\ 2/3 \\ 1/3 \end{bmatrix}, \begin{bmatrix} -2/3 \\ 1/3 \\ 2/3 \end{bmatrix}, \begin{bmatrix} 1/3 \\ -2/3 \\ 2/3 \end{bmatrix}.$$

7. The polynomial $f(t)$ is $-5 + 13t - 10t^2 + 3t^3$.