Hints for homework problems

Math 20610, Spring 2026
Assignment, due 4/10/26

Most of the problems in this section are approached by Theorems 3.4.3, 3.4.4 and 3.4.7. Here are a few additional pointers.

1. §3.4 # 37, 38, 40. See class notes (3/30) for examples.
2. §3.4, # 44, 46, 47. See class notes (either 3/27 or 3/30) for examples.
3. §3.4, # 59. We want to know if there exists an invertible matrix $S = \begin{bmatrix} x & y \\ z & w \end{bmatrix}$ so that

$$\begin{bmatrix} 2 & 0 \\ 0 & 3 \end{bmatrix} \begin{bmatrix} x & y \\ z & w \end{bmatrix} = \begin{bmatrix} x & y \\ z & w \end{bmatrix} \begin{bmatrix} 2 & 1 \\ 0 & 3 \end{bmatrix}.$$

   Do the multiplications and solve the resulting equations. There are infinitely many solutions.
4. §3.4, # 60. Similar to # 59.