

HOMEWORK ASSIGNMENT 6 (due Monday, March 10th)

Section 4.1: 2, 4, 6, 8, 10

Section 4.2: 10, 12, 14, 28, 30

Section 4.4: 4, 6, 8

Section 4.5: 2, 4, 6

**A:** This question concerns the following matrix:

$$S = \begin{bmatrix} 1/3 & 2/3 & 2/3 \\ 2/3 & 1/3 & -2/3 \\ 2/3 & -2/3 & 1/3 \end{bmatrix} .$$

This matrix is the reflection matrix from homework assignment 4. Its eigenvalues are  $\lambda = 1$  and  $\lambda = -1$ .

- (a) Find a basis for the eigenspace  $E_1$ .
- (b) Find a basis for the eigenspace  $E_{-1}$ .