In the text, read sections §5.3 and §5.4 and do the Practice Problems.

Then do the following exercises from the text.

From §5.3, do 1, 2, 21, 22, 24, 25, 26, 27, 45, and 50–54.

From §5.4, do 1.

In the exercises that ask you to diagonalize a matrix, do it over \( \mathbb{C} \) (the complex numbers) if necessary.

Also, do the following:

1. Let \( A = \begin{pmatrix} 6 & 6 \\ -2 & -1 \end{pmatrix} \) as in exercise 23.

   (a) Compute \( A^5 \) using the diagonalization.

   (b) Find a square root of \( A \), that is, \( 2 \times 2 \) matrix \( B \) such that \( B^2 = A \).