There are no exercises for this set.

It is important to understand the reasoning for the methods discussed here. If you apply the basic QR algorithm in its basic form you will get a cost that is like

$$n_{it}\, n^3$$

The problem is that n_{it} the number of iterations is unknown and can be quite large.

The next observation from the theory is that the last row converges faster. In addition its convergence is quadratic if we use shifts or origin. This makes the algorithm much more interesting. Quadratic convergence means that for all practical purposes a few steps per row. Each of these steps costs $O(n^3)$ and so we now have a cost of $\boldsymbol{O(n^4)}$. The last improvement - comes from the use of the Hessenberg form. Each of the $\boldsymbol{O(n^3)}$ operations becomes $\boldsymbol{O(n^2)}$ and this results in a total cost of $\boldsymbol{O(n^3)}$.

These developments took decades to unravel completely. If you call the function $\boldsymbol{eig}$ from Matlab, it will compute eigenvalues with the QR algorithm. It is important to know what is done behind the scenes.