Eigenvalues by the QR Method[1]

1. Enter the following sequence of commands:
```
format long
A = hilb(5)
m = eig(A)
m = flipud(m)
```

2. Next enter the the following sequence:
```
[Q,R] = qr(A);
A = R*Q;
ma = diag(A);
e = norm(m-ma)
```

3. Record the value of e. Repeat the steps in the above sequence until the value of `e` stops changing. Assume that the errors satisfies $e_{n+1} = Ke_n^r$ and use the recorded data to solve for r and K.

4. Repeat the above experiment for the Pascal matrix generated by: `A = pascal(5)`.

5. Repeat the experiment for a larger matrix.

6. How do the computed values of r and K vary in your experiments?

7. Using complete sentences and standard mathematical notation, write a brief report.

This demonstrates the simplest form of the QR method. Most modern software including MATLAB's built-in function "eig" use improved versions of this algorithm.