Homework #5

- Textbook: 8.3.10, 8.3.14 (refer to Table 8.5), 8.3.19(a,b,c) (note: $\omega > 0$), 5.3.6 (use $\| \cdot \|_2$), 5.3.7 (use $\| \cdot \|_2$), 5.3.8

- Programming:

  1. (a) Write a function that takes as input
     - number of iterations $N$;
     - sparse matrix in the format $r, c, v, m, n$;
     and runs the Power method on that matrix for $N$ iterations on an initial guess the vector of 1’s, and outputs
     - the approximate eigenvalue, $s_N$;
     - the number of flops used.
     Write out or print out your function and turn it in.

  (b) Run the case with $n = 4$, $r = [1; 2; 3; 4; 1; 2; 3; 2; 3; 4]$, $c = [1; 2; 3; 4; 2; 3; 4; 1; 2; 3]$, $v = [3; 3; 3; 3; -1; -1; -1; -2; -2; -2]$ for 1, 10, and 100 iterations and write out or print out your results.