Practice Test
Math 2601 C2

Consider the following matrices.

$$A = \begin{pmatrix} 6 & 1 & 0 \\ 1 & 5 & 1 \\ 0 & 1 & 6 \end{pmatrix} \quad B = \begin{pmatrix} 5 & -2 & 1 \\ -2 & 5 & -1 \\ 1 & -1 & 8 \end{pmatrix}$$

1) Given equations $A\vec{x} = \vec{b}$ and $B\vec{x} = \vec{b}$ where $\vec{b} = \begin{pmatrix} 0 & 0 & 0 \end{pmatrix}^t$ determine which of the above matrices will guarantee that both the Gauss-Seidel and Jacobi iteration techniques will converge to a solution (do **not** compute any eigenvalues). Then, compute the first three iterates of the approximate solution using both Gauss-Seidel and the Jacobi iteration on the system of equations for which you are guaranteed convergence.

For other practice problems related to this exam you should work all of the homework problems that were suggested. This should be sufficient preparation. If you are having difficulties with any of these problems I encourage you to either come by my office during office hours (Send me an email if you need to come by some other time. It's not a problem, just let me know.) or send me a question via email. We will have a review session Wednesday during class and possibly another on Thursday afternoon. Good luck.