Homework 7
Numerical Matrix Analysis
Math 543
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Problem 24.3:

Results I am able to see is that the two functions, $||e^{tA}||_2, e^{t\alpha(A)}$, are almost identical on a log scale. However, we see that $||e^{tA}||_2$ either looks like an exponential or an oscillating solution. I am also able to see that for matrices, A, with lesser real eigenvalues, the more likely it was to be oscillating as $t \to \infty$. For matrices with all complex eigenvalues, it would look more and more like the straight line $e^{t\alpha A}$. On page (4-5), you can see an example of an oscillating function with only 2/10 real eigenvalues.