Below is the console output for problem 1:

runfile('/Users/andrewalferman/ME526\_HW\_2\_10\_20\_16\_1BCD', wdir='/Users/andrewalferman')



Note: Functions 1 and 2 occupy the same line in this figure because they have the same imaginary parts.



Note: Functions 2 and 5 occupy the same horizontal line because they have no real parts.



Note: Functions 1 and 2 occupy the same line because the imaginary parts are identical. As seen in this plot, functions 1 through 4 all have second order accuracy based on the slopes. Function 5 has 4th order accuracy.

Below is the console output for problem 2:

runfile('/Users/andrewalferman/ME526\_HW\_2\_10\_19\_16\_2CD', wdir='/Users/andrewalferman')





As seen in the two graphs above, a step size of delta t = 0.006 provides a reasonable approximation for the exact function. The error is less than 0.05, and the function converges in a stable manner and follows the trend of the exact solution. A smaller grid size may be used if greater accuracy of the solution is needed, especially at t ~= 2.5.

Below is the console output for problem 3:

runfile('/Users/andrewalferman/ME526\_HW\_2\_P3\_10\_23\_16', wdir='/Users/andrewalferman')







