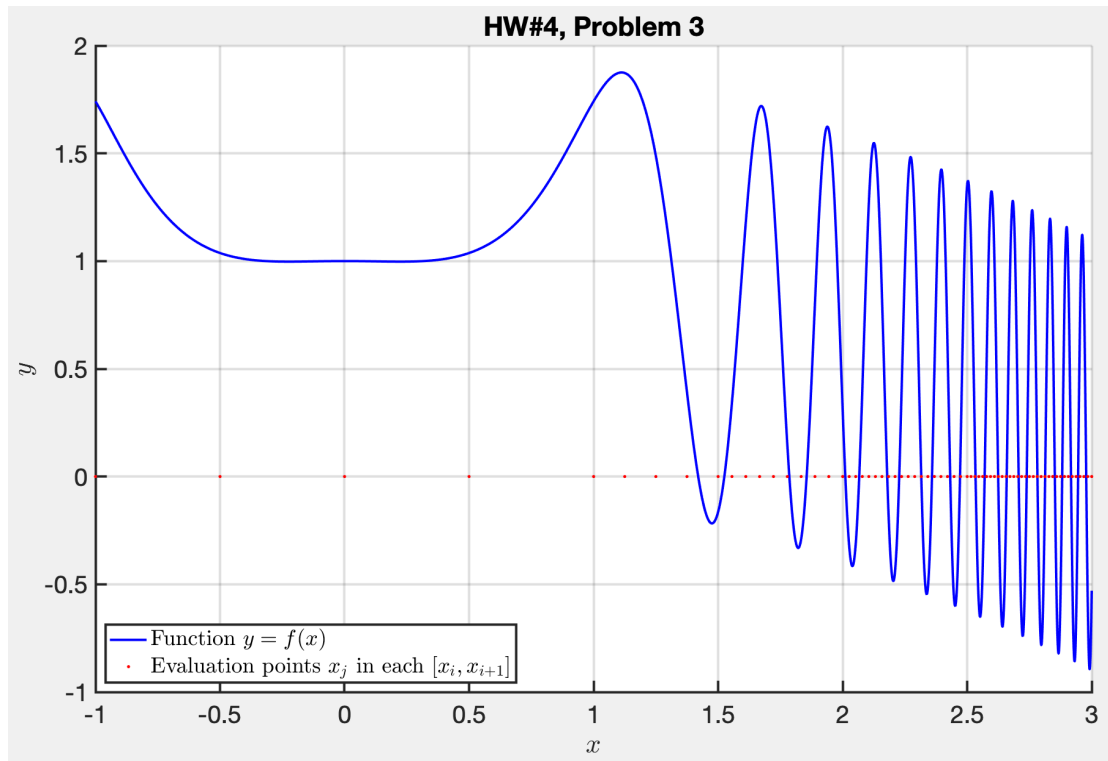
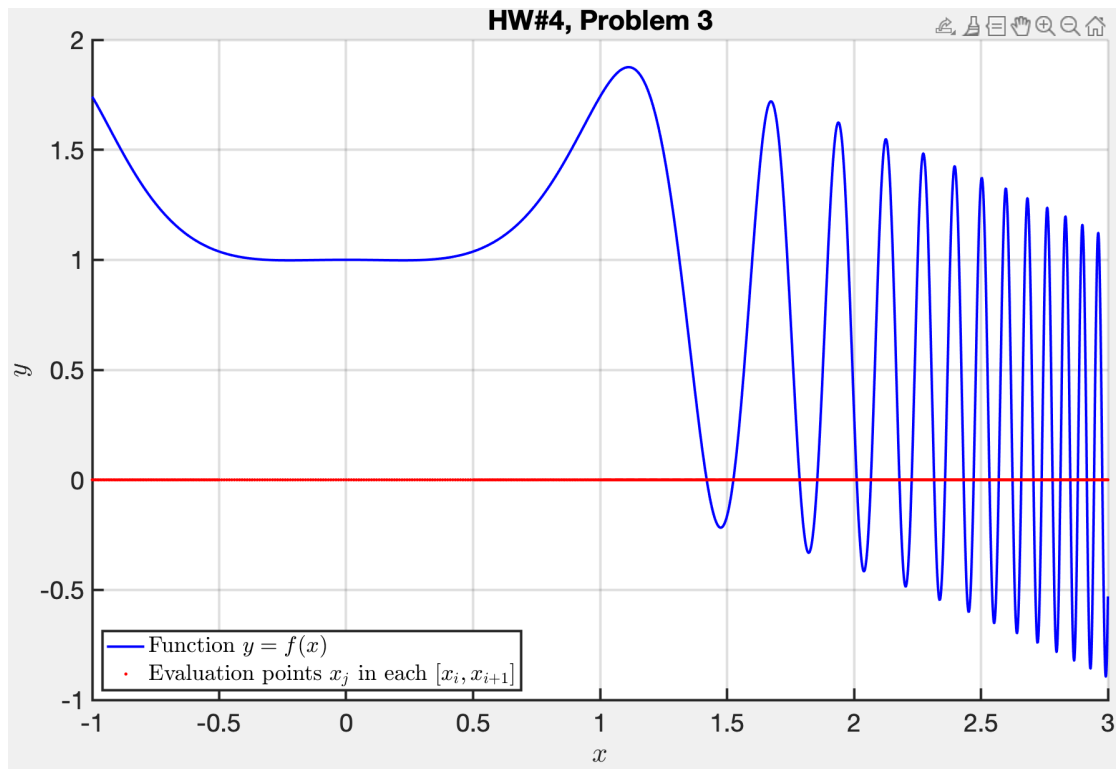


Figures for problem 3:

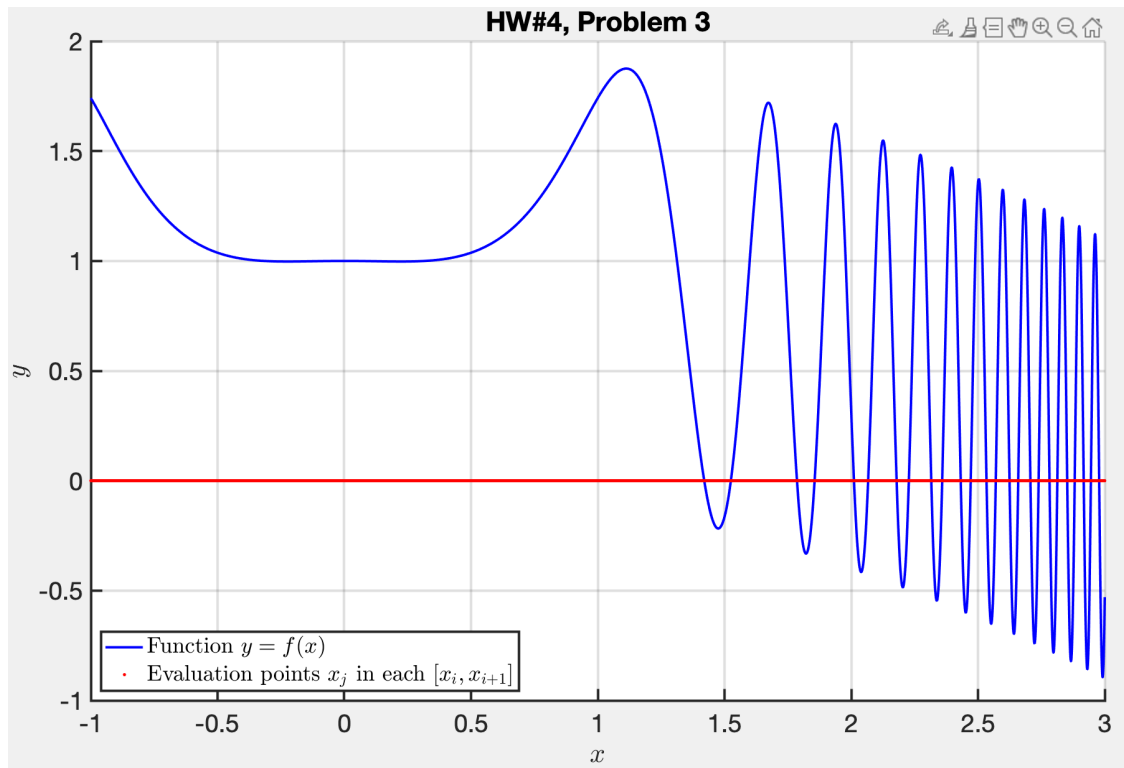
Trapezoidal Tolerance = 10^{-1} :



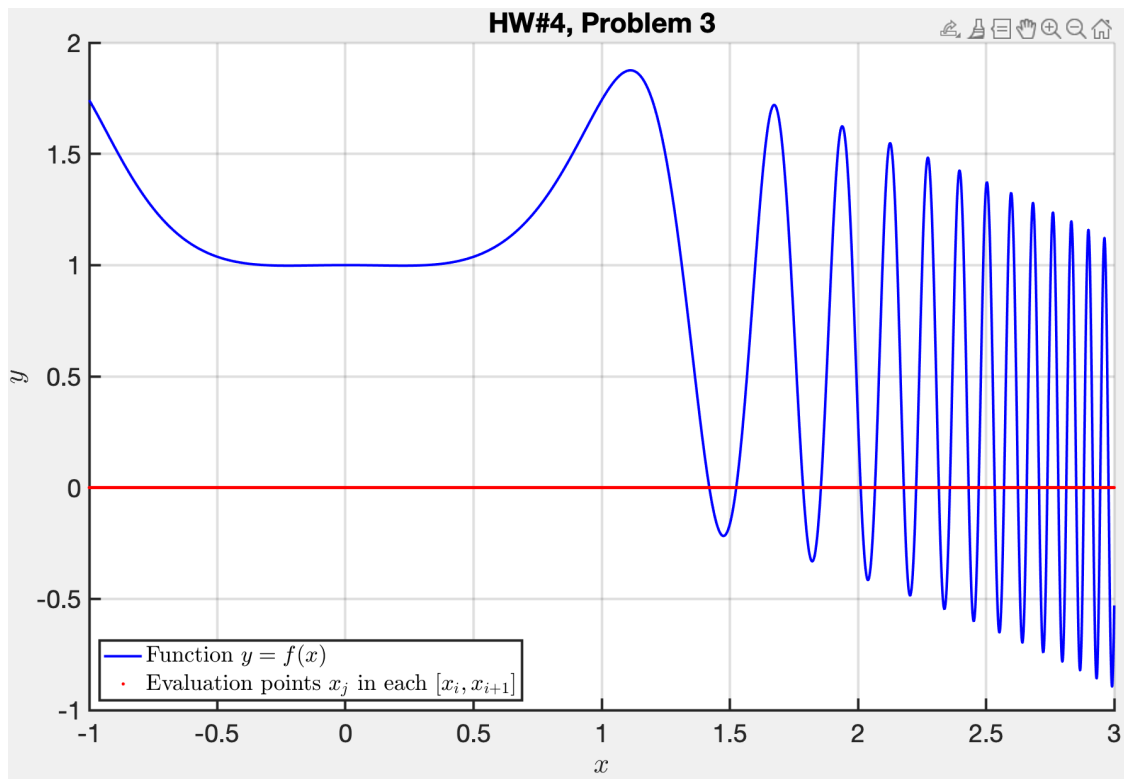
Trapezoidal Tolerance = 10^{-3} :



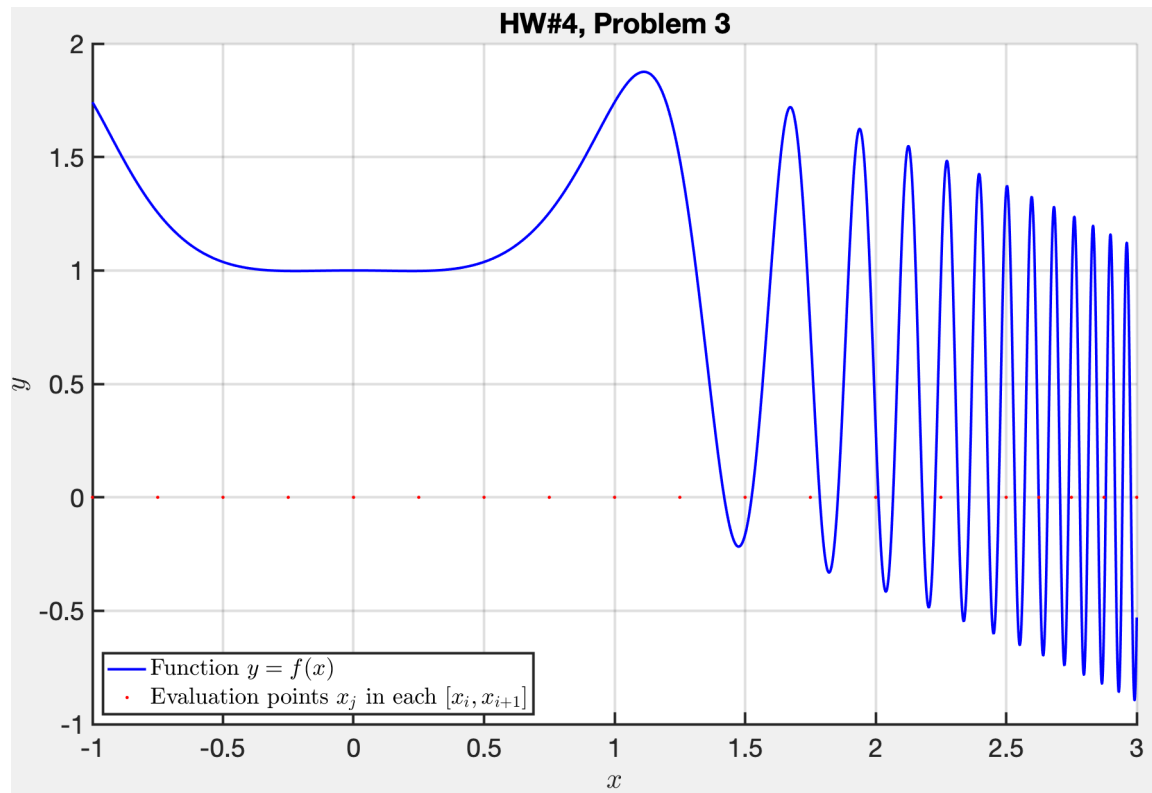
Trapezoidal Tolerance = 10^{-5} :



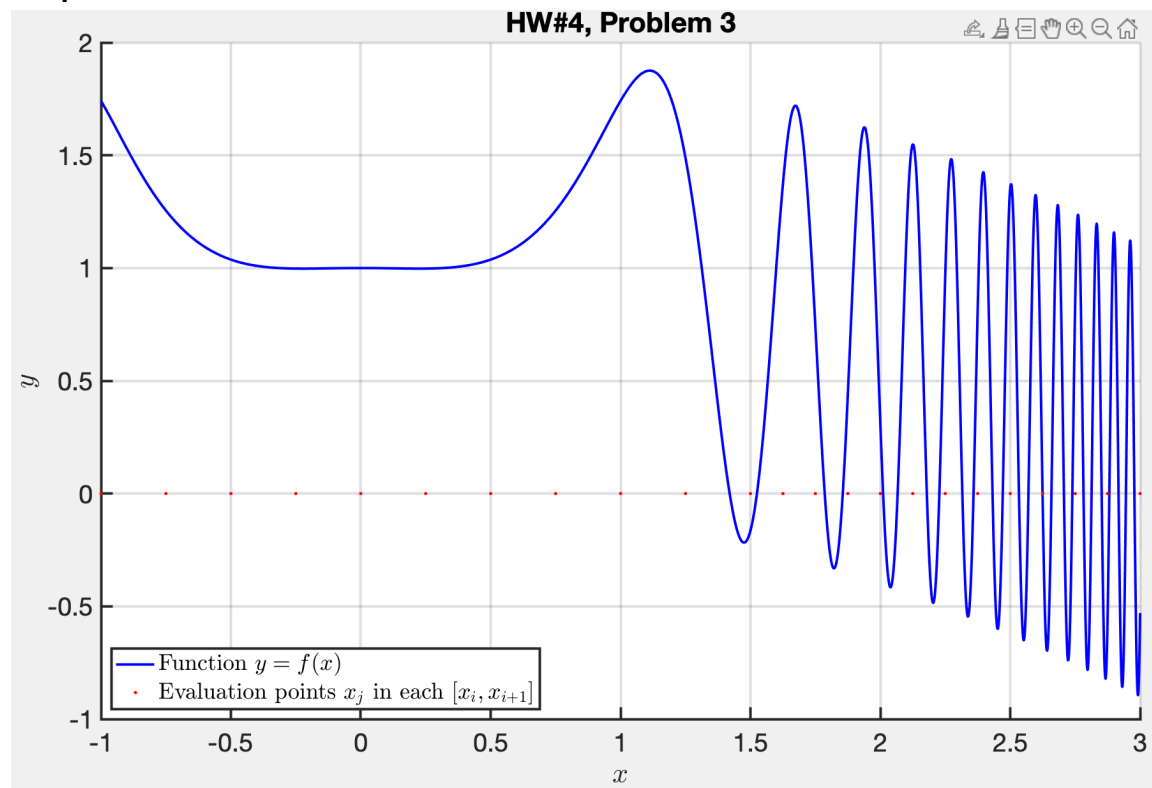
Trapezoidal Tolerance = 10^{-7} :



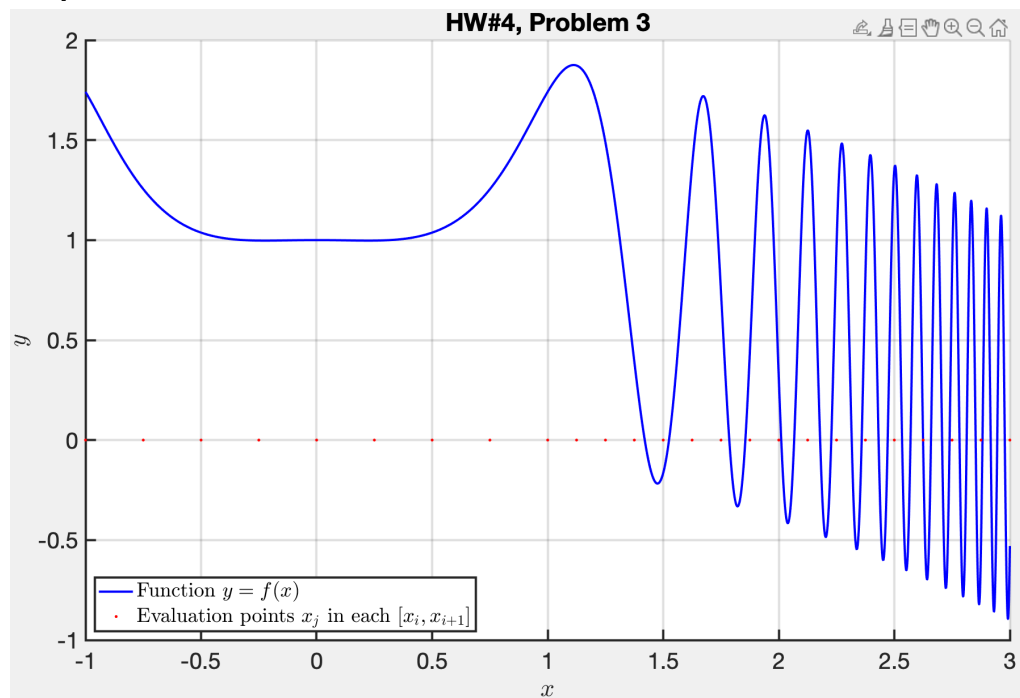
Simpson Tolerance = 10^{-1} :



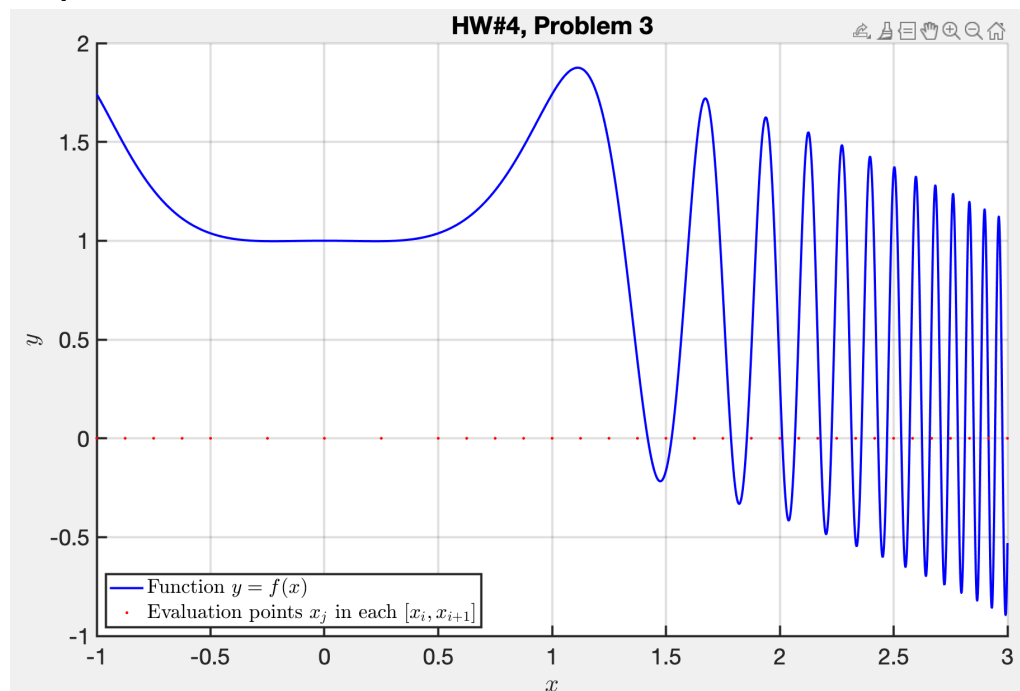
Simpson Tolerance = 10^{-3} :



Simpson Tolerance = 10^{-5} :



Simpson Tolerance = 10^{-7} :



Statement about what this means:

The approximations are all leading up to the same function, as seen by the fact that the blue line stays the same for every graph. However, the red line changes. This is because changing your tolerance changes the number of subintervals. As you make the tolerance a smaller number, the amount of subintervals (n_{tot} in this script) starts to go up. As a result, the number of red dots increases. The trapezoidal rule had a lower integration error value as well.