Ay 190 Worksheet 2

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1. Integration via Newton-Cotes Formulae

This problem calls for the integration of (a) $\sin x$ and (b) $x \sin x$ over the interval $[0, \pi]$ using both trapezoidal and Simpson's methods. The values of the integration are shown in Figures 1 and 2 and are shown to converge to the correct values for small stepsize h.

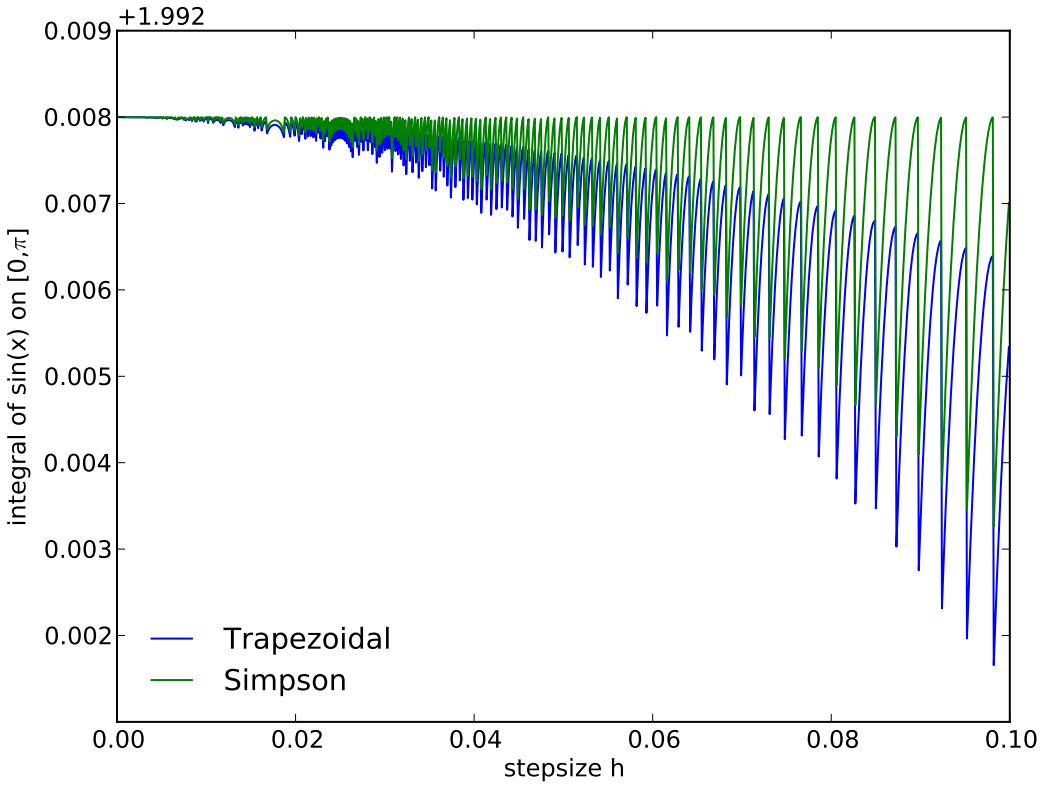

Fig. 1.— Integration of $\sin x$ via trapezoidal and Simpson's rule with varying stepsize h.

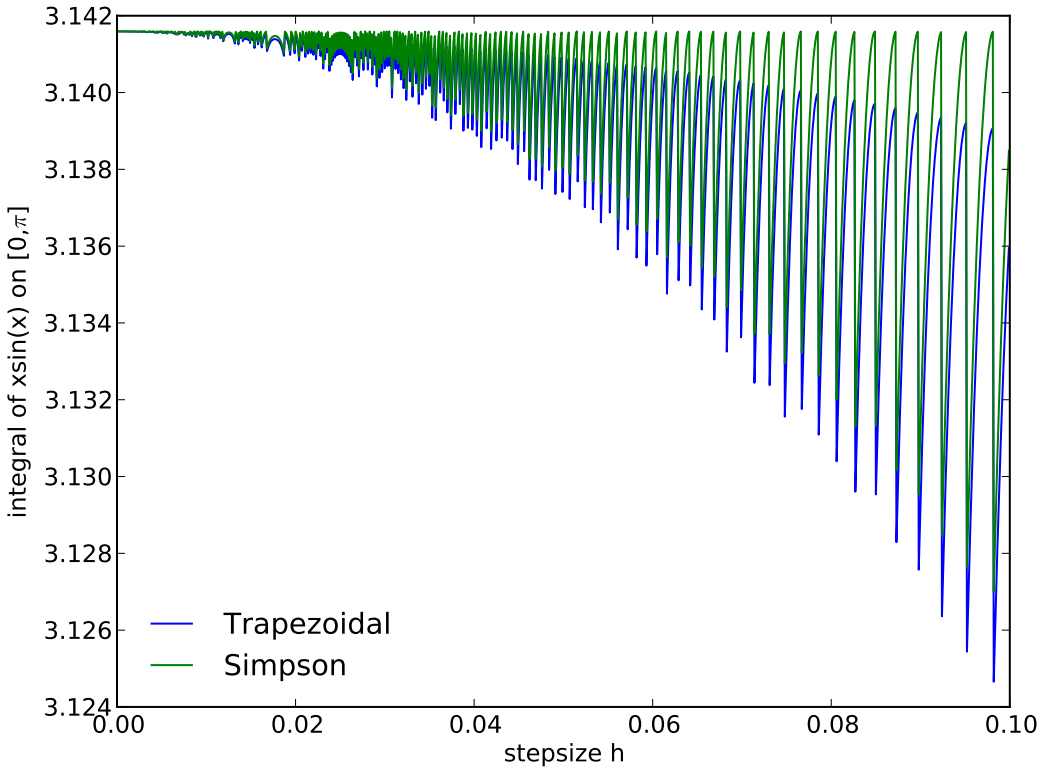

Fig. 2.— Same as Fig. 1 but for $x \sin x$.