1. Write a `pi` function that uses the built-in `polyval` function to evaluate the definite integral of a polynomial. The inputs to `pi` should be a vector of polynomial coefficients and the lower and upper limits of integration.
2. Write a `qsp` function that evaluates the integral of a cubic-spline approximation obtained with the `splint` function (in NMM toolbox).
3. Write a function `betatrap` that uses the Trapezoid rule to evaluate

$$\beta(m,n) = \int_0^1 x^{m-1}(1-x)^{n-1}dx$$

   for any m and n and for a sequence of decreasing panel sizes h. You may modify `demoTrap`.
4. Write an m-file function the evaluates $\int_0^{2\pi} sin^2(x)dx$ using the composite trapezoid rule and composite Simpson's rule. Your function may place calls to suitably modified `trapezoid, simpson`. Repeat the calculations for $np = [12481632]$ where np is the number of panels.
5. Consider evaluating the integral

$$\int_0^1 \sqrt{x}$$

   (a) Suitably modify and use the routines `trapezoid, simpson`, to evaluate the integral for three different panel sizes $N = 3, 27, 159$. Present a table comparing the measured truncation error as a function of panel size.
   (b) Modify the routine `adaptsimpson` and evaluate the integral with the adaptive Simpson's rule using $\epsilon = 0.00005$.
   (c) Use inbuilt `quad` function and evaluate the integral.