Home exercise #3

Consider the integral

$$\int_{-1}^{1} (1 - x^2)^{1/2} dx$$

Result is $\frac{\pi}{2}$.

Evaluate the integral by Gauss-Legendre quadrature. Use different degrees of polynomials for generating different number of abscissae points and compare the accuracy. Compare with the results obtained from normal quadrature formulae such as Simpson's and Bode's/Boole's rules. Comment on the accuracy and efficiency.

Write a small report where the code(s), the plots and a small discussion are included. Upload the code separately. Only one upload per group in studentportalen is required. Don't forget to include your names and group number in the report. The deadline is midnight of 22nd February, 2019.