Institut für Numerische Mathematik und Optimierung
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2nd Exercise in HPC

Exercise 1 (2P)

$$\int_0^1 \frac{1}{1+x^2} = \arctan(1) - \arctan(0) = \pi/4. \tag{1}$$

Write program using (1) to compute an approximation of π by numerical integration using the Trapezoidal rule.

$$\int_a^b f(x) \approx h\left(\frac{1}{2}f(a) + \frac{1}{2}f(b) + \sum_{i=1}^{n-1} f(a+ih)\right)$$
$$h = \frac{b-a}{n}$$

Use a seperate function for the Trapezoidal rule. Use pointers to pass on values to the function.