

Introduction to Scientific Computing Software HW1  
Student ID : < **Student ID** >

Please use MuPAD to solve following problems :

1.  $\sum_{k=0}^{\infty} \frac{(-1)^k}{k+1}$

2. Plot  $f(x) = \frac{8}{\pi^2} \left( \sin(2\pi x) - \frac{1}{9} \sin(6\pi x) + \frac{1}{25} \sin(10\pi x) \right), x \in [\pi, \pi]$

3.  $\int_{-\infty}^{\infty} \frac{1}{1+x^2} dx$

4. Calculate  $31^{< \mathbf{ID} >} \pmod{17}$