1. Write a MATLAB code to implement the forward Euler method, the backward Euler method and the trapezoidal rule for the model problem $y' = \lambda y, y(0) = 1$. Try them on the interval $[0, 1]$ for $\lambda = -1$ and $\lambda = -1000$.

2. Compare the number of steps for $\lambda = -1$ with the number needed by the MATLAB codes `ode23` and `ode45` for 3 and six digit accuracy.

3. Do some work using the FFT - to be discussed in class.