

Week 2

I. Euler's method.

- Cover the first part, "Euler's Method", in Section 2.8. There is no need to cover the "Refinements" part in this section.
- Review Exercise 2.8.3 on Euler's method. The solution is provided in the attachment.

II. Exercise 2.2.7

- Use MATLAB to plot the graphs of e^x and $\cos x$, and identify the fixed points.
- Determine the stability of the fixed points.
- Use either ode45 or Euler's methods to generate trajectories from several initial conditions, and explain the behavior of the trajectories based on the stability of the fixed points.
- Refer to the attached solution for more details..