

## Lab Assignment (Boundary Value Problem)

Consider a simple nonlinear BVP

$$\begin{aligned}x''(t) &= \frac{3}{2}x(t) \\ x(0) &= 4 \\ x(1) &= 1\end{aligned}$$

over the interval  $t \in [0, 1]$ , and solve it numerically with the shooting method and the finite difference method. Use  $\Delta x = 0.1$  and  $0.01$ .

- Construct subroutines/functions for the above numerical methods
- Provide visual graphs showing that your subroutines are working as expected.