

## 1 Problems

**Problem** Solve the following differential equation

$$\frac{dy}{dx} = -y \tag{1}$$

where  $y(0) = 1$ .

**Problem** Find the numerical solution of

$$\frac{dy}{dx} = 2y^{3/2} \tag{2}$$

where  $y(0) = 1$  for  $x = 0.1$  to  $0.5$  in steps of  $0.1$ .

**Problem** Solve the simple model problem  $y' = y$  with initial condition  $y(0) = 1$  using the Euler method.

**Problem** Implement Huen's method for  $u'(t) = u(t)$ ,  $u(0) = 1$ , up to time  $t = 10$ .