

April 28th, 2008

## Assignment C1

(classroom assignment)

### Problem 1:

Verify that  $u(x) = \sin(x)$  is a solution of the integral equation

$$u(x) = x - \int_0^x (x-t) u(t) dt.$$

### Problem 2:

Transform the IVP

$$u'(x) = u^2(x), \quad u(0) = 4$$

into an integral equation.

Is this integral equation linear ?

### Problem 3:

Solve the IVP

$$y' = 2xy, \quad y(0) = c$$

with the iterative method of Picard-Lindelöf.