

# MA22S3 Tutorial Sheet 6

16–17 November 2016

1. Solve the following initial value problems.

(a)

$$y^{-2} \frac{dy}{dx} = \log x, \quad y(1) = 1.$$

(b)

$$x \frac{dy}{dx} = y + xe^{-y/x}, \quad y(1) = 1.$$

2. Find the general solution to the following equation. Here  $\alpha$  is a constant.

$$t \frac{dx}{dt} + \alpha x = t^2.$$

Check your solution by substituting it into the differential equation.