MA 2326
Assignment 1
Due 27 January 2015

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1. Solve initial value problem
$$y(x_0) = y_0, \quad y_0 \neq 0$$
for the separable equation
$$\frac{dy}{dx} = \frac{x}{y}.$$
On what interval is the solution valid?
Note: Be careful with signs in this and the other problems.

2. Solve initial value problem
$$y(x_0) = y_0, \quad x_0 \neq 0$$
for the separable equation
$$\frac{dy}{dx} = -\frac{y}{x}.$$
On what interval is the solution valid?

3. Solve initial value problem
$$y(x_0) = y_0, \quad x_0 \neq 0$$
for the integrable equation
$$\frac{dy}{dx} = -\frac{x^3 + 3xy^2}{3x^2y + y^3}.$$
On what interval is the solution valid?