
Math 2150 - Homework # 4

First order Separable ODEs

1. (i) Find a solution to the given separable ODE, and (ii) if in your solution you can solve for y in terms of x then do so and also state the interval that the solution is defined.

(a) $1 + \frac{dy}{dx}e^{3x} = 0$

(b) $1 + \frac{dy}{dx}e^{3x} = 0, \quad y(0) = -5$

(c) $\frac{dy}{dx} = -\frac{x}{y}$

(d) $\frac{dy}{dx} = -\frac{x}{y}, \quad y(4) = 3$

(e) $xe^{-y} \sin(x) - y \frac{dy}{dx} = 0$

(f) $xe^{-y} \sin(x) - y \frac{dy}{dx} = 0, \quad y(0) = 1$

(g) $xy' = 4y$

(h) $xy' = 4y, \quad y(1) = 5$
