

Math 225 – Quiz #1: Separable & Linear Differential Equations

Clearly and neatly show all work for each problem. Solutions with no work will receive no credit. Give explicit solutions for y .

1. Solve the following differential equations. Give implicit solutions.

$$(a) \quad e^x y \frac{dy}{dx} = e^{-y} + e^{-2x-y}$$

$$(b) \quad y \ln x \frac{dy}{dx} = \frac{y+1}{x}$$

2. Solve the following differential equations. Give explicit solutions for y .

$$(a) \quad xy' + (3x + 1)y = e^{-3x}, \quad x > 0$$

$$(b) \quad xy' + y = e^x, \quad y(1) = 2$$