

## HOMEWORK #2 (Chapter 2 First –Order Differential Equations)

In problem 1-4, solve the given differential equation by separation of variables.

$$(1) \frac{dy}{dx} = \frac{x^2 - y^2}{2xy}$$

$$(2) e^x y \frac{dy}{dx} = e^{-y} + e^{-2x-y} \quad (\text{problem 8})$$

$$(3) (e^y + 1)^2 e^{-y} dx + (e^x + 1)^3 e^{-x} dy = 0 \quad (\text{problem 13})$$

$$(4) \frac{dy}{dx} = \frac{xy + 3x - y - 3}{xy - 2x + 4y - 8} \quad (\text{problem 19})$$