

MATH 2850: TAKE HOME 03 (25 points.)

NAME: _____

DUE: Wednesday, February 7th, at the beginning of class.

DIRECTIONS: Show all work.

1. Consider the ODE: $y' = \frac{x^2 + y^2}{xy}$.

(a) Show this DE is a **Bernoulli** DE by rewriting it in the form: $y' + p(x)y = f(x)y^r$.

(b) Find an **implicit** solution using the using the substitution demonstrated in class.

2. Consider the ODE: $y' = \frac{x^2 + y^2}{xy}$. (NOTE: This DE is the same as #1!)

(a) Explain why this ODE is **homogeneous**.

(b) Find an **implicit** solution to this ODE using the substitution demonstrated in class.

