

Math 307 - Differential Equations - Spring 2017

Quiz 1

February 9, 2017

Name: Solution

**Problem 1.** Compute  $\frac{\partial f}{\partial x}$  and  $\frac{\partial f}{\partial y}$  where

$$f(x, y) = x^2y + x^5 + e^{xy^2}.$$

$$\frac{\partial f}{\partial x} = 2xy + 5x^4 + y^2 e^{xy^2}$$

$$\frac{\partial f}{\partial y} = x^2 + 2xy e^{xy^2}$$

**Problem 2.** Compute  $\int f(x, y) dx$  and  $\int f(x, y) dy$  where

$$f(x, y) = xy - 7x^8y^2 + \cos x \sin y.$$

$$\int (xy - 7x^8y^2 + \cos x \sin y) dx = \frac{1}{2}x^2y - \frac{7}{9}x^9y^2 + \sin x \sin y + g(y)$$

$$\int (xy - 7x^8y^2 + \cos x \sin y) dy = \frac{1}{2}xy^2 - \frac{7}{3}x^8y^3 - \cos x \cos y + g(x)$$