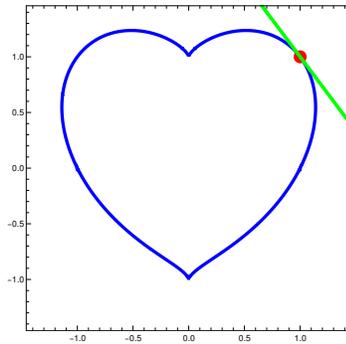# INTRODUCTION TO CALCULUS

MATH 1A

Unit 18: Worksheet

17.1. **Problem 1:** A couple of weeks ago was **Valentine day**. The heart function $(x^2 + y^2 - 1)^3 - x^2 y^3 = 0$ relates x with y, but we can not write the curve as a graph of a function $y = y(x)$. Extracting y or x is difficult. We still can find the derivative y' knowing $x = 1, y = 1$.

Problem 2: The lemniscate curve is given by $2(x^2 + y^2)^2 = 25(x^2 - y^2)$. Find the slope of the tangent at $(3, 1)$. This is the derivative of y' at $x = 3$.

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