Author 1 _____

Author 2 _____

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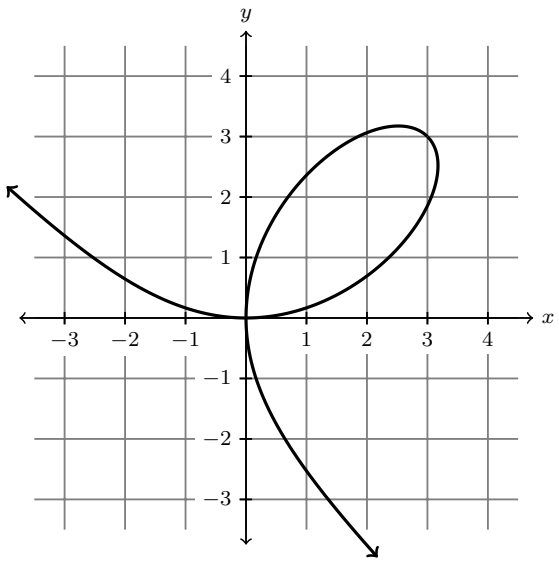
14 – Implicit Differentiation

1. The graph of the equation $x^3 + y^3 = 6xy$ is below.



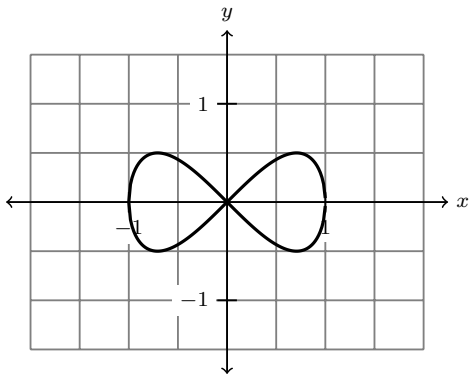
(a) Is this the graph of a *function* of x? Explain.

(b) Use the equation to show that $(3, 3)$ is on the graph.

(c) Use implicit differentiation to find a formula for $\frac{dy}{dx}$. (The formula will contain x's and y's.)

(d) Find an equation for the tangent line to the curve at the point $(3, 3)$.

2. The graph of the equation $y^2 = x^2 - x^4$.



(a) Is this the graph of $y = \sqrt{x^2 - x^4}$? Explain.

(b) Illustrate on the graph everywhere that the tangent line is horizontal.

(c) Use implicit differentiation to find a formula for $\frac{dy}{dx}$. (The formula will contain x's and y's.)

(d) Find all points where the tangent line to the curve is horizontal.