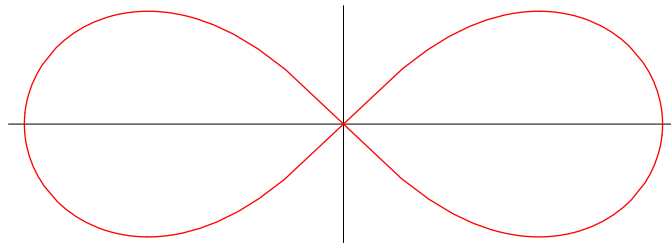


Math 1a. §3.6 Worksheet

Implicit Differentiation

Fall 2005

1. Find y' if $y^5 + x^2y^3 = 1 + ye^{x^2}$.
2. The equation $2(x^2 + y^2)^2 = 25(x^2 - y^2)$ gives a curve known as a *lemniscate*. Find the equation of the tangent line to the lemniscate at $(-3, 1)$.



3. Find the derivative of $\arctan x$.

4. Two curves are said to intersect *orthogonal* if the slopes of their tangent lines are perpendicular at the point of intersection. Show that the curves $2x^2 + y^2 = 3$ and $x = y^2$ are orthogonal.