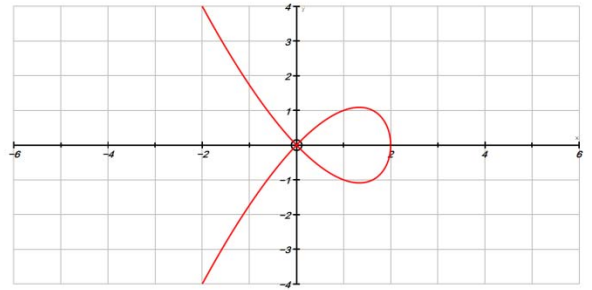


Functions and Implicit Differentiation

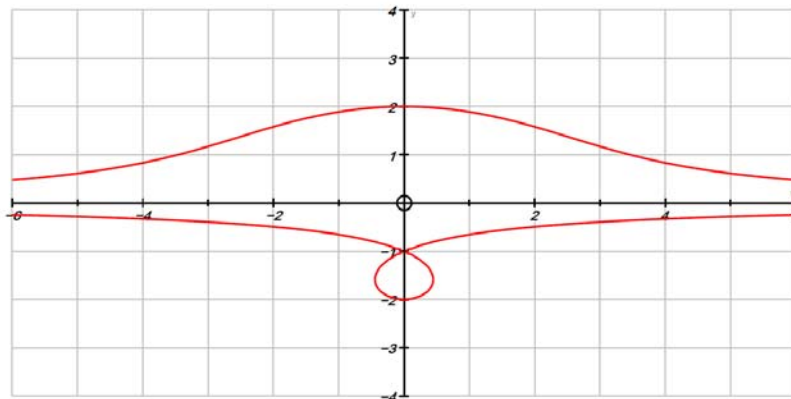
1. Find an equation of the tangent line to the curve at the given point.

$$y^2 = x^2(2-x); \quad (1,1) \quad \text{piriform}$$



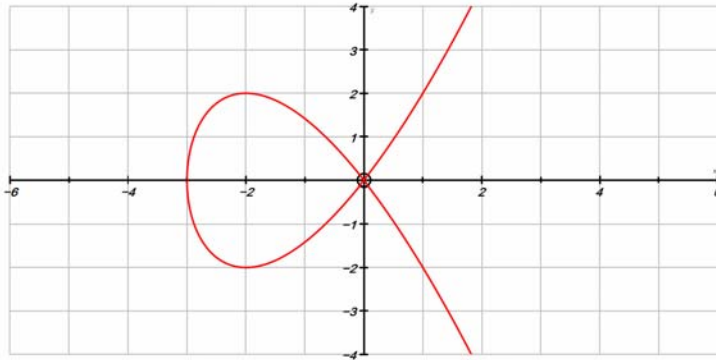
2. Find an equation of the tangent line to the curve at the given point.

$$x^2y^2 = (y+1)^2(4-y^2); \quad (0,-2) \quad \text{conchoid of Nicomedes}$$



Functions and Implicit Differentiation

3. The curve with equation $y^2 = x^3 + 3x^2$ is call *Tschirnhauser's cubic*.
- Find an equation of the tangent line to this curve at the point $(1, -2)$.
 - At what point(s) does this curve have a horizontal tangent?



4. Find all points on the curve $x^2y^2 + xy = 2$ where the slope of the tangent line is -1 .