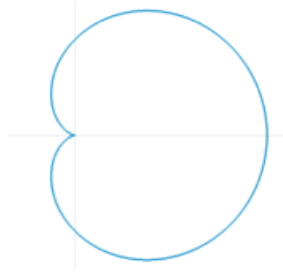


## Worksheet 9

**Name:**

1. The *cardioid* is the curve defined by the equation  $x^2 + y^2 = (2x^2 + 2y^2 - x)^2$ . It is shown below (courtesy of [nickel.mathforum.org/mathimages](http://nickel.mathforum.org/mathimages)):



(a) Verify that  $(0, \frac{1}{2})$  is a point on the graph.

(b) Find the equation of the tangent line to the curve at the point  $(0, \frac{1}{2})$ .