MORE PARAMETRIC EQUATIONS

1. Show that the curve $x = t^2 - 3t + 5$, $y = t^3 + t^2 - 10t + 9$ intersects itself at the point (3, 1).

2. A point traces a curve whose parametric equations are given by the following

$$x(t) = \frac{t^3}{3} - 6t^2 + 20t \qquad , \qquad y(t) = \frac{-t^3}{3} + 5t^2 + 5 .$$

A. When is the object moving to the right? To the left?

B. Does the particle ever stop? If so, when and where?

C. Find the point where the particle is moving only horizontally (if it ever does). Moving only vertically.

D. Find $\dfrac{dy}{dx}$.

E. Find the equation of the tangent line to the curve at (15, 41). Express in explicit form and in parametric form.