CALCULUS 1501 WINTER 2010

HOMEWORK ASSIGNMENT 11.

Due April 9.

11.1. Find the equation of the tangent line to the parametric curve given by

$$\begin{cases} x = 3t^2 + 1 \\ y = 2t^3 + 1, \end{cases}$$

that passes through the point $(4, 3)$.

11.2. Find the length of the loop of the curve

$$x = 3t - t^3, \quad y = 3t^2.$$

11.3. Find the points on the curve given in polar coordinates by

$$r^2 = \sin 2\theta$$

where the tangent line is horizontal or vertical.

11.4. Graph the curve

$$r = 2 + \cos 2\theta$$

and find the area that it encloses.

11.5. Find a formula for the distance between the points with polar coordinates (r_1, θ_1) and (r_2, θ_2).