Quiz 3

Fall 2013 **Your name:** _____

Math 0230 **Your TA's name:** _____

No calculators, no notes, no books. Show all your work (no work = no credit). Write neatly. Simplify your answers.

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1. [5 points] Find an equation of the tangent line to the parametric curve $x = t - t^{-1}$, $y = 1 + t^2$ at the point where $t = \dfrac{1}{2}$. Represent the equation in the slope-intercept form.

2. [5 points] Find the area of the region that lies inside the curve $r = \sin\theta$ and outside the curve $r = 1 - \sin\theta$.

bonus problem [5 points extra] Find the exact length of the cardioid $r = 1 + \cos\theta$.