

Name: _____

Math 252 Calculus II (Bueler)

Wednesday 21 March 2018

Quiz #8

In class. 25 minutes. No textbook or notes or calculator. 30 points total.

1. (5 pts) Eliminate the parameter to find a Cartesian equation of the curve, and then sketch a graph of the curve, indicating with an arrow the direction the curve is traced.

$$x = \sqrt{t}, \quad y = 1 - t; \quad 0 \leq t \leq 4$$

2. (5 pts) At what point on the curve $x = 3t^2 + 1$, $y = t^3 - 1$ does the tangent line have slope $\frac{1}{2}$? (*Hint.* Your answer must be a point in the plane, not just a parameter value.)

3. (5 pts) Find an equation of the tangent line to the curve at the given point:

$$x = 1 + \ln t, \quad y = t^2 + 2; \quad (1, 3)$$

4. (5 pts) Set up, but do not evaluate, an integral that represents the length of the curve:

$$x = t^2 - t, \quad y = t^4; \quad 1 \leq t \leq 4$$

5. (10 pts) Find the exact length of the curve:

$$x = e^t \cos t, \quad y = e^t \sin t; \quad 0 \leq t \leq \pi$$