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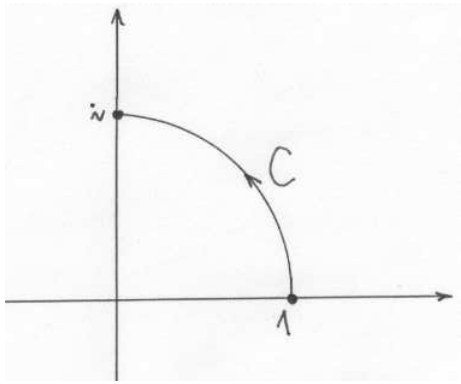
MATH 4103 Quiz 9 Spring 2016

Name: _____

Problem. [1+1+1 points]

Let the contour C in $\mathbb{C}$ be the part of the unit circle that is in the first quadrant, traversed counterclockwise, as shown in the figure below. Let $f(z) = z^4$.



(a) Parameterize the contour C; be specific about the range of value the parameter t should take.

(b) Find $f(Z(t))$ and $Z'(t)$.

(c) Use your result from part (b) to compute $\int_C f(z)\,\mathrm{d}z$ directly from the definition of a contour integral.