Math 295 - Fall 2020
Homework 6
Due at 11:59pm on Friday October 23

Please turn in this assignment on Gradescope.

Problem 1 : (Objective D1) Compute each of the following integrals of a function f along a contour γ by **using the definition of a complex integral**.

a) $\displaystyle\int_\gamma \frac{1}{z}\,dz$, where $\gamma(t) = e^{it}, 0 \le t \le 2\pi$

b) $\displaystyle\int_\gamma x\,dz$, where $\gamma(t) = e^{it}, 0 \le t \le 2\pi$

c) $\displaystyle\int_\gamma |z|^2\,dz$, where $\gamma(t) = (5+i)t - 2, 0 \le t \le 1$

Problem 2 : (Objective D2) Compute each of the following integrals of a function f along a contour γ by **first computing an antiderivative**.

a) $\displaystyle\int_\gamma \exp(3z)\,dz$, where $\gamma(t) = 3e^{it}, 0 \le t \le 2\pi$

b) $\displaystyle\int_\gamma \left(z + z^2\right)\,dz$, where $\gamma(t) = t + it^2, 0 \le t \le 1$

c) $\displaystyle\int_\gamma \frac{1}{z}\,dz$, where $\gamma(t) = e^{it}, -\pi/2 \le t \le \pi/2$