Fall 2020 ENG 5300 Quiz 1 Mingzuoyang Chen

You must show **all** work to receive full credit. All work is to be your own. 09/28/2020

This is a closed books and notes test. Be organized. Total points: **20** 19:44- 19:57

1. §10.1 Line Integral. Work done by a force. Calculate $\int_C \mathbf{F}(\mathbf{r}) \cdot d\,\mathbf{r}$ for the following data. If $\mathbf{F}$ is a force, this gives the work done in the displacement along C. (Show the details.)
   $\mathbf{F} = [z,\ x,\ y],\ \ C : \mathbf{r} = [\cos t,\ \sin t,\ t]$ from $(1, 0, 0)$ to $(1, 0, 4\pi)$. 10 points

2. §10.2 Path-Independent Integrals. Show that the form under the integral sign is exact in the space and evaluate the integral. (Show the details of your work). 10 points

$$\int_{(2,3,0)}^{(0,1,2)} (z\, e^{xz}\, dx + dy + xe^{xz}\, dz)$$