Fall 2020 ENG 5300 Quiz 1 Ruihao Yang

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.)
   $\mathbf{F} = [x-y,\ y-z,\ z-x]$, $C : \mathbf{r} = [2\cos t,\ t,\ 2\sin t]$ from $(2, 0, 0)$ to $(2, 2\pi, 0)$. 10 points

2. §10.2 Show that the form under the integral sign is exact in space and evaluate the integral. Show the details of your work. 10 points

$$\int_{(0,1,0)}^{(1,0,1)} (e^x \cosh y\, dx + (e^x \sinh y + e^z \cosh y)\, dy + e^z \sinh y\, dz)$$