Fall 2020 ENG 5300 Quiz 1

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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.)
   $\mathbf{F} = [e^x,\, e^y,\, e^z]$, $C : \mathbf{r} = [t,\, t^2,\, t^2]$ from $(0, 0, 0)$ to $(2, 4, 4)$. 10 points

2. §10.2 Check for Path Independence and, if independent, integrate from $(0,0,0)$ to (a,b,c). (Show the details of your work.) 10 points

$$xy\,z^2\,dx + \frac{1}{2}x^2z^2\,dy + x^2yz\,dz$$