

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.)

$$\mathbf{F} = [z, x, y], \quad C : \mathbf{r} = [\cos t, \sin t, t] \text{ from } (1, 0, 0) \text{ to } (1, 0, 4\pi).$$

10 points

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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

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