

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.)

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

10 points

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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

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