

Math 103.02 Quiz Ten

Due Monday, November 29.

I have neither given nor received aid in the completion of this test.

Signature:

(1) Let C the segment joining $(1, 1)$ to $(3, 5)$. Calculate

$$\int_C x \, dx \quad \int_C x \, ds \quad \text{and} \quad \int_C (x, y) \bullet \mathbf{T} \, ds.$$

(In class I gave the hint that to do the second of these you can use the fact that if $\mathbf{F}(x, y) = (x, 0)$ for $(x, y) \in \mathbb{R}^2$ then \mathbf{F} is a gradient.)

(2) Let C be curve joining $(1, 0, 0)$ to $(-1, 0, 0)$ which lies in

$$\left\{ (x, y, z) : x^2 + \frac{y^2}{2} + \frac{z^2}{2} = 1, \, y = z \text{ and } z \geq 0 \right\}.$$

Calculate

$$\int_C x \, ds \quad \text{and} \quad \int_C (x, 0, z) \bullet \mathbf{T} \, ds.$$