2"QUIZ" for Lecture 18

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E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q18FirstLast.pdf) ASAP BUT NO LATER THAN Nov. 9, 8:00pm

1. Let C be the line segment from (0,1) to (2,3), find $\int_C xy\,ds$.

$\langle -2, 2 \rangle$

$r(t) = (0,1) + t\langle -2, 2 \rangle$

$= -2t, 1+2t$

$xy \rightarrow -2t(1+2t) = -2t - 4t^2\,dt$

$\frac{-4t^3}{3} - t^2 \Big|_0^1 \rightarrow \boxed{-\frac{7}{3}}$

2. Evaluate $\int_C xy^2\,dx + x^2y\,dy$,

where C is $x: t^2, y = t^3, 0 \le t \le 1$. $dx = 2t$ $dy = 3t^2$

$\int (t^2)(t^3)^2\,dx + (t^2)^2(t^3)\,dy$

$\int 2t \cdot t^6\,dt + t^7(3t^2)\,dt$

$\int 2t^7\,dt + 3t^9\,dt \rightarrow \int_0^1 5t^7\,dt \rightarrow \frac{10t}{2}\Big|_0^1 = \boxed{\frac{1}{2}}$