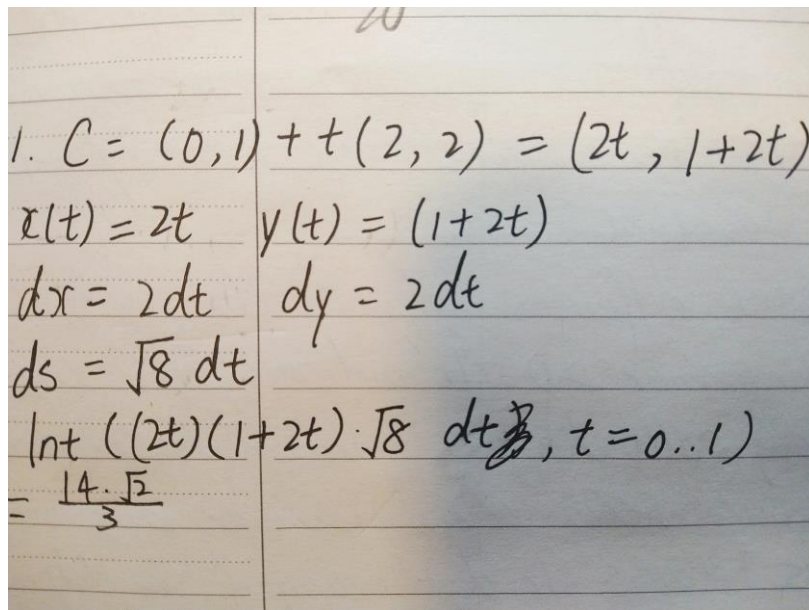


"QUIZ" for Lecture 18

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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 $\int_C xy \, ds$.



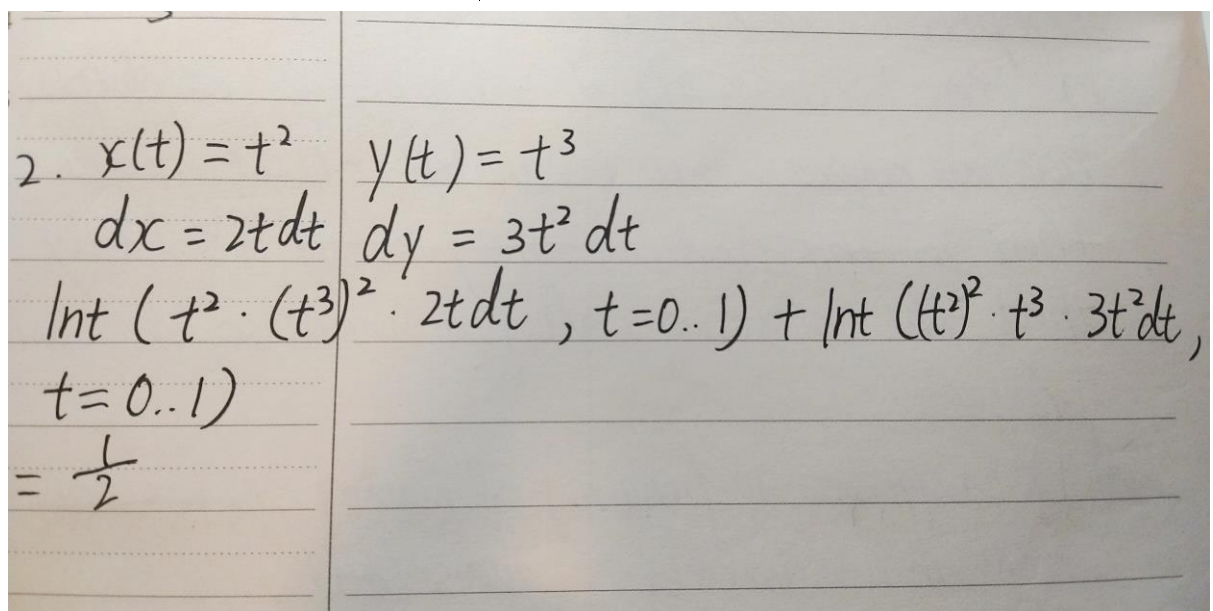
Handwritten solution for problem 1:

$$1. C = (0, 1) + t(2, 2) = (2t, 1+2t)$$
$$x(t) = 2t \quad y(t) = (1+2t)$$
$$dx = 2dt \quad dy = 2dt$$
$$ds = \sqrt{8} \, dt$$
$$\int_0^1 ((2t)(1+2t) \cdot \sqrt{8} \, dt), t=0..1$$
$$= \frac{14\sqrt{2}}{3}$$

2. Evaluate

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

where C is $x = t^2, y = t^3, 0 \leq t \leq 1$.



Handwritten solution for problem 2:

$$2. x(t) = t^2 \quad y(t) = t^3$$
$$dx = 2t \, dt \quad dy = 3t^2 \, dt$$
$$\int_0^1 (t^2 \cdot (t^3)^2 \cdot 2t \, dt, t=0..1) + \int_0^1 (t^2)^2 \cdot t^3 \cdot 3t^2 \, dt,$$
$$t=0..1)$$
$$= \frac{1}{2}$$