"QUIZ" for Lecture 13

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E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q13FirstLast.pdf) ASAP BUT NO LATER THAN Oct. 22, 8:00pm

1. Change the order of integration in

$$\int_1^4 \int_0^{\ln y} f(x,y)\,dx\,dy \quad .$$

$\int_0^{\ln y} \int_1^4 f(x,y)\,dy\,dx$

2. Evaluate

$$\int_0^2 \int_{y/2}^1 \frac{1}{(x^2+1)^2}\,dx\,dy \quad ,$$

by inverting the order of integration and evaluating the new iterated integral.

$\frac{2}{9}$

$\int_{y/2}^1 \int_0^2 \frac{1}{(x^2+1)^2}\,dy\,dx$

$\int_0^2 \frac{1}{(x^2+1)^2}\,dx$

$\frac{y}{(x^2+1)^2}\Big|_0^2$

$\int_{y/2}^1 \frac{2}{(x^2+1)^2}\,dx$

$2\cdot\frac{1}{9}=\frac{2}{9}$

$u=x^2+1$

$du=2x\,dx$

$\int_{\frac{y}{2}}^1 \frac{2x}{(x^2+1)^2}\,dx$

$2\int_{\frac{5}{4}}^{2} \frac{u}{(u+1)}\,du$

$\frac{2}{3}-\frac{5}{9}=\frac{2}{3}\cdot\frac{3}{3}-\frac{5}{9}=\frac{6}{9}-\frac{5}{9}=\frac{1}{9}$