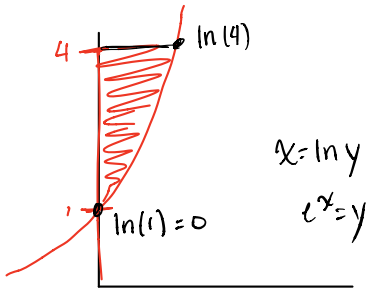


"QUIZ" for Lecture 13

NAME: (print!) Jennifer Gonzalez Section: 23

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



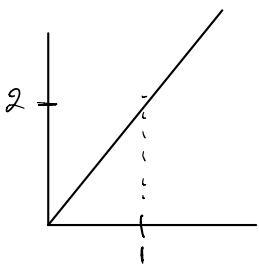
$$\int_1^4 \int_0^{\ln y} f(x,y) dx dy$$

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

2. Evaluate

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

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



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

$$\frac{1}{x^2+1} \cdot y \Big|_{2x}^2 = \frac{2}{x^2+1} - \frac{2x}{x^2+1}$$

$$x = \frac{y}{2}$$

$$2x = y$$

$$\int_0^1 \frac{2}{x^2+1} dx - \int_0^1 \frac{2x}{x^2+1} dx =$$

$$2 \arctan \Big|_0^1 - \ln(x^2+1) \Big|_0^1 =$$

$$2 \arctan(1) - 2 \arctan(0) - \ln 2 = \frac{\pi}{2} - \ln 2$$