

"QUIZ" for Lecture 13

NAME: (print!) Veram Sarah Jung 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.

$$0 \leq y \leq 2 \quad y/2 \leq x \leq 1 \\ y \leq 2x \leq 2$$

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

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

$$\int \frac{2x}{(x^2 + 1)^2} dx = -\frac{1}{x^2 + 1} \Big|_0^1 = -\frac{1}{2} - (-1) = \boxed{\frac{1}{2}}$$