**"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

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

$$1 \le y \le 4 \; 0 \le x \le \ln(y)$$

$$0 \le x \le \ln(4) \;\; e^x \le y \le 4, \int_0^{\ln(4)} \int_{e^x}^4 f(x,y)\,dx$$

**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.

$$\frac{y}{2} \le x \le 1 \; 0 \le y \le 2 \; \int_0^2 \int_{\frac{y}{2}}^1 \frac{1}{(x^2+1)^2}\,dx\,dy$$

$$0 \le x \le 1 \; 0 \le y \le 2x \; \int_0^1 \int_0^{2x} \frac{1}{(x^2+1)^2}\,dy\,dx = -\frac{1}{2} + 1 = \frac{1}{2}$$