"QUIZ" for Lecture 13

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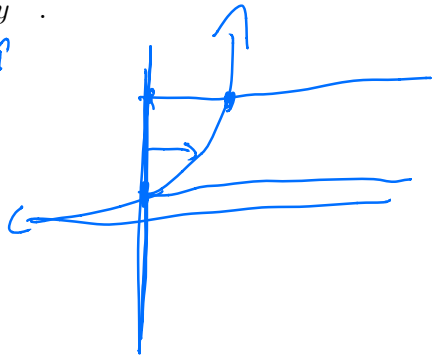
E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q13FirstLast.pdf) ASAP BUT NO LATER THAN Oct. 22, 8:00pm

1. Change the order of integration in

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



$$\int_1^e \int_y^4 f(x,y)\,dy\,dx$$

$$\ln y = y$$

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.

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

$$\int_0^1 \frac{2x}{x^2+1}\,dx = \int \frac{1}{v}\,dv \qquad v = x^2+1 \quad dv = 2x$$

$$\ln|x^2+1| \Big|_0^1$$

$$|\ln|1+1| - \ln|1|| = \ln|2|$$