

"QUIZ" for Lecture 13

NAME: (print!) Aditya Sivakumar

Section: 24

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

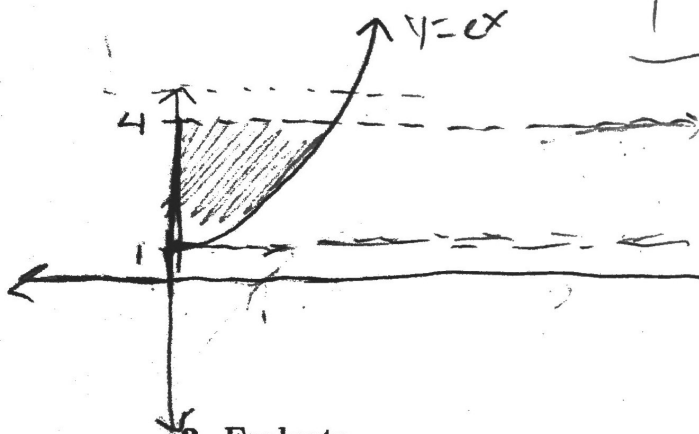
1. Change the order of integration in

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

$$0 \leq x \leq \ln y$$

$$1 \leq y \leq 4$$

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



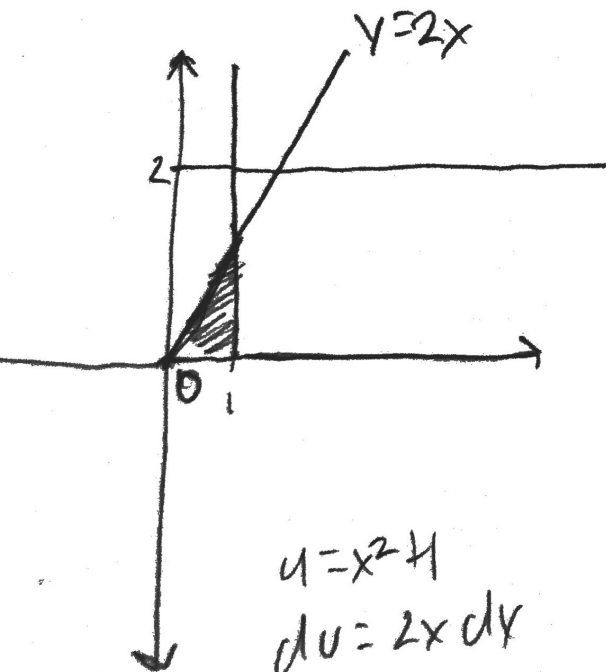
$$1 \leq x \leq e^4$$

$$1 \leq y \leq e^x$$

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.



$$0 \leq y \leq 2 \quad \frac{y}{2} \leq x \leq 1$$

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

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

$$\int_0^1 \frac{2x}{(x^2+1)^2} dx = \int_1^2 v^{-2} dv$$

$$= -\frac{1}{v} \Big|_1^2 = -\frac{1}{2} - -1 = \boxed{\frac{1}{2}}$$