

"QUIZ" for Lecture 13

NAME: (print!) harika Kompella Section: 23

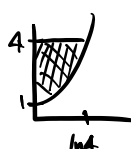
E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q13FirstLast.pdf) ASAP BUT NO LATER THAN Oct. 22, 8:00pm

1. Change the order of integration in

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

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

$\int_1^4 \int_0^{\ln y} f(x,y) dx dy$ $0 < x < \ln y$ $1 < y < 4$



$\int_0^{\ln 4} \int_1^4 f(x,y) dy dx$ $0 < x < \ln 4$ $1 < y < 4$

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.

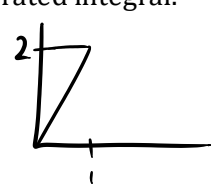
$$\int_0^1 \int_0^2 \frac{1}{(x^2+1)^2} dy dx$$

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

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

$$\int_0^1 \frac{2}{(x^2+1)^2} dx \rightarrow 2 \int_0^1 \frac{1}{(x^2+1)^2} dx \rightarrow 2 \left(\frac{\arctan x}{2} + \frac{x}{2x^2+2} \right) \Big|_0^1 \rightarrow \boxed{\frac{\pi+2}{4}}$$

$\frac{y}{2} < x < 1$ $0 < y < 2$



$0 < x < 1$ $0 < y < 2$