

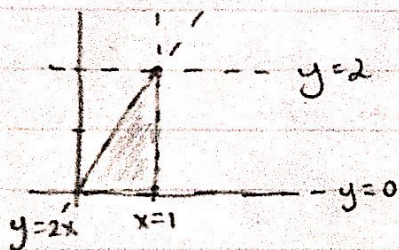
Yash Khangura "Quiz" for Lecture 13 Section: 24

1.) Change the order of integration in

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

2.) Evaluate by inverting the order of integration and evaluating the new iterated integral

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



$$u = x^2 + 1$$
$$2x dx = du$$
$$\int_1^2 u^{-2} du = -\frac{1}{u} \Big|_1^2 = -\frac{1}{2} + \frac{2}{2} = \frac{1}{2}$$
$$x=0, u=1$$
$$x=1, u=2$$