NAME: (print!) —————————— Aayushi Kasera —————————— Section: ———

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

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

$$x = \ln y$$

$$y = e^x$$

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

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.

$$\int_{y/2}^1 (x^2+1)^{-2}\, dx$$

$$-\frac{1}{2} + \frac{1}{\frac{y^2}{2}+1}$$

$$\left[\frac{(x^2+1)^{-1}}{-1} \right]_{y/2}^1$$

$$\int_0^2 -\frac{1}{2} + \frac{2}{y^2+1}$$

$$\int_0^2 -\frac{1}{2} + \frac{2}{y^2+1}$$

$$\left[-\frac{1}{2}y + 2\tan^{-1}(y) \right]_0^2$$

$$-1 + 2\tan^{-1}(2) - 2\tan^{-1}(0)$$

$$= 125.87$$