1. Change the order of integration
$0 \le x \le \ln y$
$1 \le y \le 4$
Graph the bounds for $y = \exp x$
New order of integration = $1 \le y \le \exp x$
$1 \le x \le \exp 4$

2. Evaluate by inverting the order of integration and evaluating the iterated integral
New bounds = $0 \le y \le 2x$
$0 \le x \le 1$

Integrate new iterated integral for y for the bounds 0..2x
$2x/(x^2+1)^2$
Integrate for x for the bounds 0..1
Use u sub to get u^2 and the new bounds 1..2
= 1/2