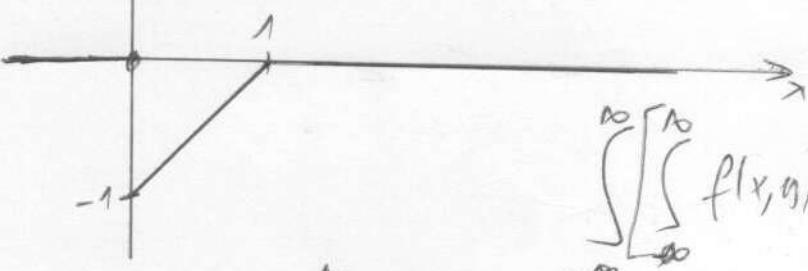


One can see that $\int_0^{\infty} f(x,y) dy = \begin{cases} x-1 & , \text{if } 0 < x < 1 \\ 0 & , \text{if } x > 1 \\ & \text{or } x < 0 \end{cases}$



$$\int_{-\infty}^{\infty} \left[\int_{-\infty}^{\infty} f(x,y) dx \right] dy = +\frac{1}{2}$$

$$\int_{-\infty}^{\infty} \left[\int_0^{\infty} f(x,y) dy \right] dx = -\frac{1}{2}$$

They are not equal.

The Fubini theorem does NOT apply: $\int_{\mathbb{R}^2} |f| dx dy = \infty$

$= \text{Area}(\text{shaded region}) = \infty$