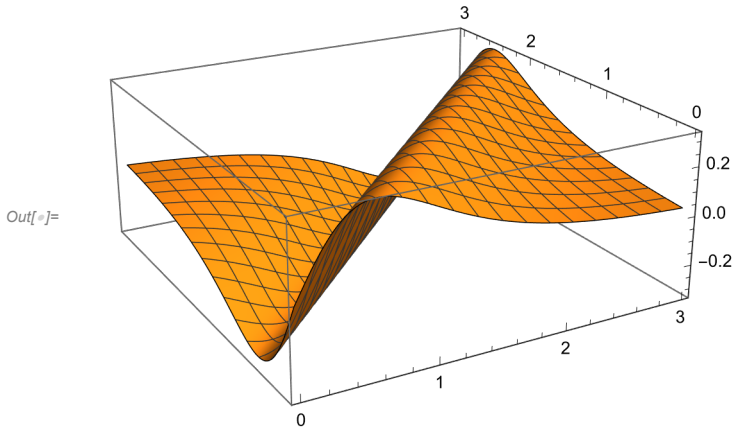


Pensieve header: a Fubini counterexample from Kuperberg's FaceBook.

$$\text{In}[*]:= \mathbf{f} = \frac{x - y}{(1 + (x - y)^2)^2}$$

$$\text{Out}[*]= \frac{x - y}{(1 + (x - y)^2)^2}$$

`In[*]:= Plot3D[f, {x, 0, 3}, {y, 0, 3}, PlotRange -> All, PlotPoints -> 100]`



`In[*]:= Assuming[y >= 0, Integrate[f, {x, 0, ∞}]]`

$$\text{Out}[*]= \frac{1}{2 + 2 y^2}$$

`In[*]:= Integrate[1 / (2 + 2 y^2), {y, 0, ∞}]`

$$\text{Out}[*]= \frac{\pi}{4}$$

`In[*]:= Assuming[x >= 0, Integrate[f, {y, 0, ∞}]]`

$$\text{Out}[*]= -\frac{1}{2 + 2 x^2}$$

`In[*]:= Integrate[-1 / (2 + 2 x^2), {x, 0, ∞}]`

$$\text{Out}[*]= -\frac{\pi}{4}$$