

19.3

Aufgabe 4

Blac Vahedi

Andre Jellwig

Piotr Bales

$$\int_C \langle f(x,y), d(x,y) \rangle$$

$$C \subset \mathbb{R}^2 \quad C: \gamma(t) = (\cos(t), \sin(t)) \quad t \in [0, 2\pi)$$

$$f \in C^0(\mathbb{R}^2, \mathbb{R}^2) \quad f(x,y) = (-y, x) \quad , (x,y) \in \mathbb{R}^2$$

$$\int_C \langle f(x,y), d(x,y) \rangle$$

C

$$= \int_C (-y dx, x dy)$$

$$= \int_0^{2\pi} (-\sin(t))(-\sin(t)) + \cos(t)\cos(t) dt$$

$$= \int_0^{2\pi} 1 dt$$

$$= 2\pi$$
