

特别地,若被积函数仅为一元函数,则

 $\iiint f(x)dv = \iiint f(y)dv = \iiint f(z)dv.$

若积分区域 D 关于 y = x 对称,则 $\iint f(x,y)d\sigma = \iint f(y,x)d\sigma = \frac{1}{2} \iint [f(x,y) + f(y,x)]d\sigma$.

如果 f(-x, y) = f(x, -y) = f(x, y),则

4) 若积分区域 D关于原点对称,记

如果 f(-x,-y) = -f(x,y) 则

如果 f(-x,-y) = f(x,y),则

 $\iint f(x,y)d\sigma = 4\iint f(x,y)d\sigma.$

 $D_1 = \{(x, y) \in D \mid x \ge 0\}$

 $\iint f(x,y)d\sigma = 0.$

 $\iint f(x,y)d\sigma = 2\iint f(x,y)d\sigma.$

5 轮转对称性

 $∂_1 = \{(x, y) \in D \mid y \ge x\},$

如果 f(x,y) = -f(y,x) 则 $\iint f(x,y)d\sigma = 0$.

如果 f(x,y) = f(y,x), 见 $\iint f(x,y) d\sigma = 2 \iint f(x,y) d\sigma$.

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