下作业十二

Noflowerzzk

2025.5.10

P275 T1

(3) 原式 =

$$\int_0^{2\pi} -(\cos t+\sin t)\sin t-(\cos t-\sin t)\cos t\mathrm{d}t$$

(7) 代入 $y=x\tan\alpha$ 有原式 =

$$\begin{aligned}&(1-\tan\alpha)\int_L x\mathrm{d}z-z\mathrm{d}x\\&=2\pi(\cos\alpha-\sin\alpha)\end{aligned}$$

P275 T2

证明.

$$\begin{aligned}\left|\int_L P(x,y)\mathrm{d}x+Q(x,y)\mathrm{d}y\right|&\le\int_L|P(x,y)\cos\alpha+Q(x,y)\cos\beta|\,\mathrm{d}s\\&\le\int_L\sqrt{P^2(x,y)+Q^2(x,y)}\mathrm{d}s\\&\le MC\end{aligned}$$

□

P289 T2

(3)

$$S=\frac{1}{2}\int_L x\mathrm{d}y-y\mathrm{d}x=\frac{a^2}{2}\int_0^{2\pi}(2-t\sin t-2\cos t)\mathrm{d}t=3\pi a^2$$