QUIZ-4

Note: This is the last quiz in the course.

1. Let $i : S^1 \hookrightarrow \mathbb{R}^2 \setminus \{(0,0)\}$ be the inclusion map and $\omega = \dfrac{-y\,dx + x\,dy}{x^2+y^2} \in \Omega^1(\mathbb{R}^2 \setminus \{(0,0)\})$.

Show that

$$\int_{S^1} i^*(\omega) = 2\pi$$

(3)

2. Show that the differential form ω in Problem (1) is closed but not exact.

(3)