MATH 251 – QUIZ 10

Question 1: *(5 points)*

Use Green's Theorem to calculate the line integral below, where C is the boundary of the region $4 \leq x^2 + y^2 \leq 9$, oriented positively.

$$\int_C \left(-4y^3 + x^2\right) dx + \left(4x^3 + y^2\right) dy$$

Question 2: *(5 points)*

Calculate the surface area of S, where S is the part of the cone with the following parametric equations:

$$\begin{cases} r(u,v) = \langle u\cos(v), u\sin(v), u\rangle \\ \quad 0 \leq u \leq 3 \\ \quad 0 \leq v \leq \pi \end{cases}$$

Date: Friday, December 3, 2021.