Q1) In the following question, use Green’s theorem to write R.H.S of the given line integral as a double integral, showing correct integral limits (Do not evaluate integrals in this question).

(a) \[ \int_C y^3 \, dx + x^3 \, dy = \]

where C is triangle counterclockwise with vertices A(-3,1), B(0,1) and C(0,3).

(b) \[ \int_C y \sin^2 x \, dx - x \cos^2 y \, dy = \]

Where C is closed counter clockwise by \( y = x^3, \) and \( x = y \)

Q2) Evaluate the integral using Green’s theorem \[ \int_C x^2 \, dy \]

Where C is given by \( x^2 + y^2 = 9. \)