

Calculus II

Assignment 9

20180713

Name : _____

Student ID : _____

1. Evaluate the line integral, where C is the given curve.
 $\int_C y^3 ds, \quad C : x = t^3, y = t, 0 \leq t \leq 2$
2. Evaluate the line integral by two methods : (a) directly and (b) using Green's Theorem.
 $\oint_C xy dx + x^2 y^3 dy, \quad C$ is the triangle with vertices $(0, 0), (1, 0), (1, 2)$
3. Find the area of the surface.
The surface with parametric equations $x = u^2, y = uv, z = \frac{1}{2}v^2,$
 $0 \leq u \leq 1, 0 \leq v \leq 2$
4. Evaluate the surface integral.
 $\iint_S (x + y + z) dS,$
 S is the parallelogram with parametric equations $x = u + v, y = u - v,$
 $z = 1 + 2u + v, 0 \leq u \leq 2, 0 \leq v \leq 1.$
5. *Find (a) the curl and (b) the divergence of the vector field.
 $F(x, y, z) = (x + yz)\mathbf{i} + (y + xz)\mathbf{j} + (z + xy)\mathbf{k}$

Notice : * is an optional question.

Reading materials : Textbook (Calculus 6ed Stewart) Section 17.1, 17.2, 17.4, 17.6, 17.7, especially

- Section 17.1, Example 2, 3, 6.
- Section 17.2, Example 1, 2.
- Section 17.4, Example 1, 2.
- Section 17.6, Example 1, 5, 10.
- Section 17.7, Example 1.

Or alternate Textbook (Calculus Early Transcendentals 6ed Stewart) Section 16.1, 16.2, 16.4, 16.6, 16.7, especially

- Section 16.1, Example 2, 3, 6.
- Section 16.2, Example 1, 2.
- Section 16.4, Example 1, 2.
- Section 16.6, Example 1, 5, 10.
- Section 16.7, Example 1.