

Univ. of Jordan

Second Exam

28/7/2007

Math. Dept.

Eng. Math. (302)

(9-10)

الاسم

الرقم الجامعي

الصفحة

(Q1) a) Find the Fourier series for $f(x) = |\sin x|, -\pi < x < \pi$

17 Evaluate the Flux integral $\iint_S \mathbf{F} \cdot d\mathbf{A}$ where:

$$\mathbf{F} = z\mathbf{i} + x\mathbf{j} - 3y^2z\mathbf{k} \text{ and}$$

S is the surface of the cylinder $x^2 + y^2 = 16$ included in the first octant between $z=0$ and $z=5$.

23) Evaluate $\oint_C [(y - \sin x)dx + \cos x dy]$, where C is the triangle with vertices $(0,0)$, $(\frac{\pi}{2}, 0)$, $(\frac{\pi}{2}, 1)$ by using Green's theorem in the plane.

Evaluate $\int \vec{F} \times \frac{d^2 \vec{F}}{dt^2} dt$, where \vec{F} is a nonzero function.

$$\vec{F} = [F_1(t), F_2(t), F_3(t)]$$