

“QUIZ” for Lecture 16

NAME: (print!) LiuyangShan

Section: 24

E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q16FirstLast.pdf) ASAP BUT NO LATER THAN Nov. 2, 8:00pm

1. Compute the Jacobian of the transformation

$$\Phi(r, s) = (rs, r + s)$$

$$\frac{\partial(x, y)}{\partial(r, s)} = \begin{pmatrix} r & s \\ r & s \end{pmatrix} = r * s - r * s = 0$$

2. Let $D = \Phi(R)$ where $\Phi(u, v) = (u + v, v^2)$ and $R = [0, 6] \times [1, 2]$. Calculate

$$\iint_D y \, dA \quad .$$

(Note: it is not necessary to compute D).

$$\int_1^2 \int_0^6 2v^4 \, du \, dv = \frac{372}{5}$$