"QUIZ" for Lecture 12

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E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q12FirstLast.pdf) ASAP BUT NO LATER THAN Oct. 19 8:00pm

1. Calculate the iterated integral

$$\int_1^2 \int_{-1}^1 (x+y^2)\,dx\,dy =$$

$$\int_1^2 \left(\frac{x^2}{2} + y^2 x\right)\Big|_{-1}^{1} dy = \int_1^2 \left(y + \frac{y}{2}\right) + \left(-\frac{1}{2} + y\right) dy$$

$$= \int_1^2 2y\,dy = y^2\Big|_1^2 = \boxed{3}$$

2. Calculate the double integral

$$\int\int_R \frac{x^2 y}{x^3+1}\,dA \quad ,$$

$$R = \{(x,y) \mid 0 \le x \le 1,\ -1 \le y \le 1\} \quad .$$

$$= \int_0^1 \int_{-1}^1 \frac{x^2 y}{x^3+1}\,dy\,dx = \int_0^1 \frac{x^2}{x^3+1}\left[\int_{-1}^1 y\,dy\right] dx$$

$$\left[\left(\frac{y^2}{2}\right)\Big|_{-1}^{1}\right] = \frac{1}{2} - \frac{1}{2} = 0$$

$$\boxed{= 0}$$