"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

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

$$\int_{-1}^{1} (x+y^2)\,dx = \frac{x^2}{2} + xy^2 \Big|_{-1}^{1} = \frac{1}{2} + y^2 - \left(\frac{1}{2} - y^2\right) = 2y^2$$

$$\int_1^2 2y^2\,dy = \frac{2}{3}y^3 \Big|_1^2 = \frac{16}{3} - \frac{2}{3} = \frac{14}{3}$$

2. Calculate the double integral

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

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

$$\int_{-1}^{1} \frac{x^2 y}{x^3+1}\,dy = \frac{x^2 y^2}{2(x^3+1)} \Big|_{-1}^{1} = \frac{x^2}{2x^3+2} - \frac{x^2}{2x^3+2} = 0$$

$$\int_0^1 0\,dx = 0$$