

"QUIZ" for Lecture 12

NAME: (print!) Shawn Goda Section: 23

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

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

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

$$\int_1^2 2y^2 dy = \left. \frac{2y^3}{3} \right|_{-1}^2 = \frac{2(2)^3}{3} - \frac{2(-1)^3}{3}$$

$$= \frac{16}{3} + \frac{2}{3} = \frac{18}{3} = 9$$

2. Calculate the double integral

$$\iint_R \frac{x^2 y}{x^3 + 1} dA$$

$$R = \{(x, y) \mid 0 \leq x \leq 1, -1 \leq y \leq 1\}$$

$$\int_0^1 \int_{-1}^1 \frac{x^2 y}{x^3 + 1} dy dx : \int_{-1}^1 \frac{x^2 y}{x^3 + 1} dy = \left. \frac{y^2 x^2}{2(x^3 + 1)} \right|_{-1}^1$$

$$= \left( \frac{x^2}{2(x^3 + 1)} \right) - \left( \frac{x^2}{2(x^3 + 1)} \right) = 0$$

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