

"QUIZ" for Lecture 12

NAME: (print!) Angelica Armstrong 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

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

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

$$\frac{1^2 - (-1)^2}{2} + y^2(1 - (-1)) = 2y^2$$

$$\int_1^2 2y^2 dy \rightarrow \frac{2y^3}{3} \Big|_1^2 \rightarrow \frac{2(2^3 - 1^3)}{3} \rightarrow \frac{2 \cdot 2^3}{3} - \frac{2}{3}$$

$$= \frac{2(7)}{3} = \frac{14}{3}$$

2. Calculate the double integral

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

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

$$\int_0^1 \int_{-1}^1 \frac{x^2 y}{x^3 + 1} dy dx$$

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

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