"QUIZ" for Lecture 14

NAME: (print!) _ Joe Barr

Section: 24

E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q14FirstLast.pdf) ASAP BUT NO LATER THAN Oct. 26, 8:00pm

1. Evaluate the iterated integral

 $\int_0^1 \int_{-\infty}^{3x} \int_0^y x^2 yz \, dz \, dy \, dx \quad .$ $\int_{X}^{3\chi} \chi^{2} y^{3} dy = \frac{\chi^{2} y^{4}}{y} \Big|_{\chi}^{3\chi} = \frac{\chi^{2} (3\chi)^{4}}{4} - \frac{\chi^{6}}{4} = \frac{80\chi^{6}}{4}$ $(3) \int_{\pi}^{1} 20x^{7} dx = \frac{20x^{8}}{20x^{8}} \int_{0}^{1} = \frac{90}{8}$

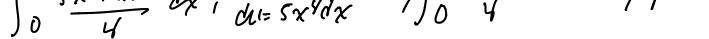
2. Evaluate the triple integral

$$\int \int \int_E y z \ln(x^5) \, dV \quad ,$$

where

$$E = \{(x, y, z) \mid 0 \le x \le 1, 0 \le y \le x, 2x \le z \le 3x\}$$

 $\int_{0}^{1} \int_{0}^{3} \chi \int_{1x}^{3\chi} yz \ln(x^{5}) dz dy dx$ $(\int_{2\chi}^{3\chi} yz \ln(x^{5}) dz = \frac{yz^{2} \ln(x^{5})}{Z} \int_{2\chi}^{3\chi} = \frac{9y \frac{x^{2} \ln(x^{5})}{Z} - \frac{4yx^{2} \ln(x^{5})}{Z}}{Z}$ $= 5Y \frac{x^{2} \ln(x^{5})}{2} = \int_{0}^{\infty} \int_{0}^{\infty} \frac{5y x^{2} \ln(x^{5})}{2} dy = \frac{5y^{2} x^{2} \ln(x^{5})}{1} \int_{0}^{\infty} \frac{5x^{4} \ln(x^{5})}{1} dy$ $n = \frac{1}{2} x^{4} \ln(x^{5}) dx = \frac{1}{2} x^{5} - \frac{1}{2} \sum_{i=1}^{n} \frac{1}{2} \ln(x^{5}) dx = -\frac{1}{4} \frac{1}{4}$



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