NAME: (print!) Yongshan Li **Section:23**
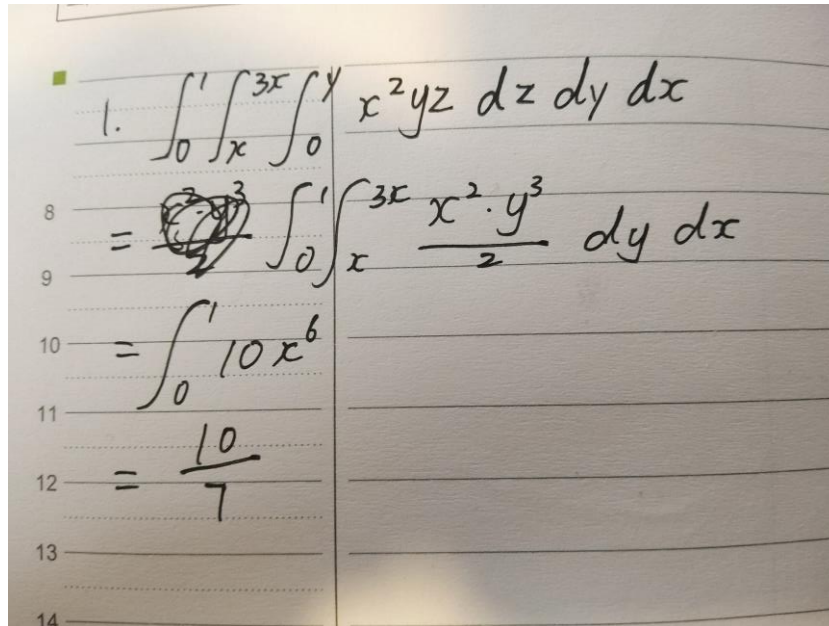
E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q14FirstLast.pdf) ASAP BUT NO LATER THAN Oct. 26, 8:00pm

1. Evaluate the iterated integral
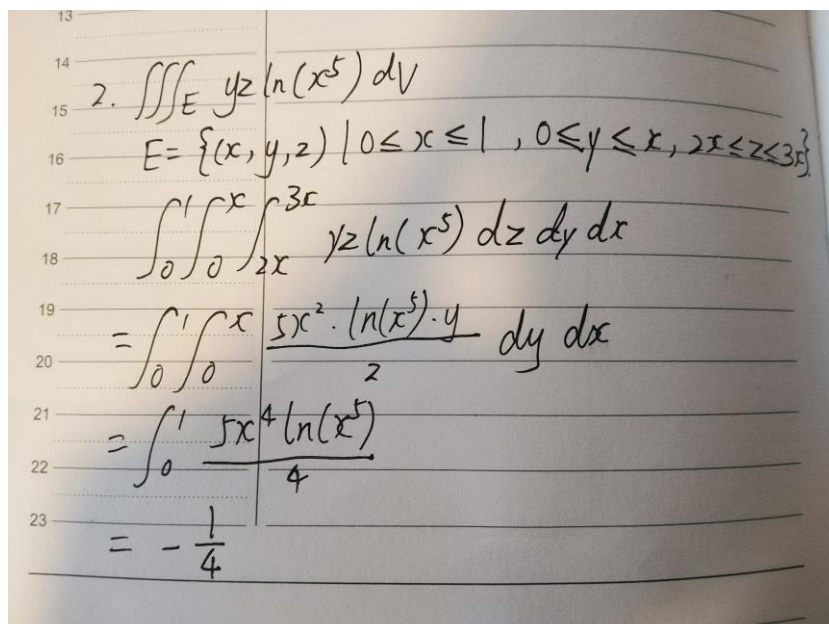
$$\int_0^1 \int_x^{3x} \int_0^y x^2 yz \, dz \, dy \, dx .$$

$$1. \int_0^1 \int_x^{3x} \int_0^y x^2 yz \, dz \, dy \, dx$$

$$= \int_0^1 \int_x^{3x} \frac{x^2 \cdot y^3}{2} \, dy \, dx$$

$$= \int_0^1 10 x^6$$

$$= \frac{10}{7}$$

2. Evaluate the triple integral

$$\iiint_E yz \ln(x^5) \, dV ,$$

where

$$E = \{(x, y, z)| \; 0 \leqslant x \leqslant 1 , \; 0 \leqslant y \leqslant x , \; 2x \leqslant z \leqslant 3x \} .$$

$$2. \iiint_E yz \ln(x^5) \, dV$$

$$E = \{(x,y,z) \,|\, 0 \leq x \leq 1 , \; 0 \leq y \leq x, \; 2x \leq z \leq 3x\}$$

$$\int_0^1 \int_0^x \int_{2x}^{3x} yz \ln(x^5) \, dz \, dy \, dx$$

$$= \int_0^1 \int_0^x \frac{5x^2 \cdot \ln(x^5) \cdot y}{2} \, dy \, dx$$

$$= \int_0^1 \frac{5x^4 \ln(x^5)}{4}$$

$$= -\frac{1}{4}$$