NAME: (print!) **AAYUSHI KASERA**   **Section:** _____

E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: qXFirstLast.pdf) ASAP BUT NO LATER THAN Dec. 1, 2020, 8:00pm

1. Determine whether or not the vector field is conservative. If it is, find a function f such that $\mathbf{F} = \triangledown f$.
$$\mathbf{F}(x, y, z) = (3x^2 y^3 z^3 + yz)\,\mathbf{i} + (3x^3 y^2 z^3 + xz)\,\mathbf{j} + (3x^3 y^3 z^2 + xy)\,\mathbf{k}$$

2. Evalute
$$\int_C \overset{\text{P}}{5y\,dx} + \overset{\text{Q}}{10x\,dy}\quad,$$

where C is the closed curve consisting of the boundary of the rectangle
$$\{\,(x, y)\,|\,0 \le x \le 1\quad,\quad 0 \le y \le 1\,\}.$$

$$\int_R \int (10 - 5)\,dA$$

$$\int_R \int 5 \cdot dA$$

$$5\,(\text{leng} \times \text{breath}) = \underline{\underline{5}}$$