"QUIZ" for Lecture 24

NAME: (print!) Wenhao Li **Section:** All

E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q24FirstLast.pdf) ASAP BUT NO LATER THAN Dec. 4, 2020, 8:00pm

By using Stokes' Theorem, or otherwise, evaluate $\int_C \mathbf{F} \cdot d\mathbf{r}$, where

$$F(x, y, z) = (yz + 2y + 3z)\mathbf{i} + (xz + 2x + 4z)\mathbf{j} + (xy + 3x + 4y)\mathbf{k} \quad ,$$

where C is the curve if intersection of the plane $x + y + z = 1$ and the cylinder $x^2 + y^2 = 1$, oriented counterclockwise as viewed from above. Be sure to explain everything.

i	j	k
d/dx	d/dy	d/dz
yz+2y+3z	xz+2x+4z	xy+3x+4y

i(d/dy(xy+3x+4y)-d/dz(xz+2x+4z))-j(d/dx(xy+3x+4y)-d/dz(yz+2y+3z))+k(d/dx(xz+2x+4z)-d/dy(yz+2y+3z))=0

intC F.dr=int curlF .ds
int 0 ds=0