

“QUIZ” for Lecture 25

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

E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q25FirstLast.pdf) ASAP BUT NO LATER THAN Dec.8,2020, 8:00pm

Let

$$F(x, y, z) = \langle \cos(\sqrt{1+x^7} + zy^9) \quad , \quad \tan(x^7 + y^2 + 1/z) \quad , \quad \tan^{-1}(e^{xyz} + \cos^6(x^8 - y + 3z)) \rangle \quad ,$$

and let $\langle P, Q, R \rangle = \text{curl } \mathbf{F}$. Compute

$$\frac{\partial P}{\partial x} + \frac{\partial Q}{\partial y} + \frac{\partial R}{\partial z} \quad .$$

Be sure to explain everything.

2. Calculate the surface integral

$\int \int_S \mathbf{F} \cdot d\mathbf{S}$, where

$$\mathbf{F}(x, y, z) = \langle 2x + y + z, x + 2y + z, x + y + 2z \rangle$$

where S is the surface of the box bounded by the planes $x = 0, x = 1, y = 0, y = 4, z = 0, z = 5$.