NAME: (print!) Angelica Armstrong   **Section:** 23

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 $\langle P, Q, R \rangle = curl\ \mathbf{F}$. Compute
$$\frac{\partial P}{\partial x} + \frac{\partial Q}{\partial y} + \frac{\partial R}{\partial z} \quad .$$

Be sure to explain everything.

Since $<P, Q, R> = curl\ F$

$div(curl(F)) = 0$

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 $x = 0$, $x = 1$, $y = 0$, $y = 4$, $z = 0$, $z = 5$.