

**“QUIZ” for Dec. 14, 2009 (Marathon Review Session)**

**NAME:** (print!) \_\_\_\_\_ **Section:** \_\_\_\_\_

**E-MAIL ADDRESS:** (print!) \_\_\_\_\_

Which of the following answers nonsense. Explain!

1.  $\int_0^\pi \int_{-1}^1 r \cos \theta \, dr \, d\theta$  (in polar coordinates)
2.  $\int_0^\pi \int_0^1 \int_{-3}^3 r \cos \theta \, dz \, dr \, d\theta$  (in cylindrical coordinates)
3. The tangent plane to the surface  $z = x^2 + y^2$  at  $(1, 1, 2)$  is  $z = 2 + 2x(x - 1) + 2y(y - 1)$  .
4. For some vector field  $\mathbf{F}$ ,  $\operatorname{div} \mathbf{F} = \langle x, y, z \rangle$
5. For some vector field  $\mathbf{F}$ ,  $\operatorname{curl} \mathbf{F} = \sin(x + y + z)$
6. The arclength of a certain curve equals  $-5$ .
7. The volume of a certain solid body equals  $-11.1$
8. The volume-integral of a certain function over a certain solid-body equals  $-11.1$ .
9. The line-integral of a certain scalar function over a certain curve equals  $-7$ .
10.  $\sin^{-1}(2)$ .