Math2210 Quiz 11 (Sections 13.8, 14.1)   Summer, 2012   Dylan Zwick

Name _____ Date _____

1. *(18 points)* Calculate the volume of the solid bounded by the paraboloid $z=x^2+y^2$ and the plane $z=4$.

Answer : _____

2. *(14 points)* Calculate div **F** and curl **F** for the vector field

$$F(x,y,z)=e^x\cos(y)\,i+e^x\sin(y)\,j+z\,k$$

div **F** : _____

curl **F** :_____

3. *(2 points each)* If f(x,y,z) is a scalar function and **F**(x,y,z) is a vector field, which of the following make sense (circle one):

a) $\nabla\cdot\nabla(f)$ Makes sense.   Does not make sense.

b) div(grad(f))   Makes sense.   Does not make sense.

c) grad(div(**F**))   Makes sense.   Does not make sense.

d) $\nabla\times\nabla(f)$ Makes sense.   Does not make sense.