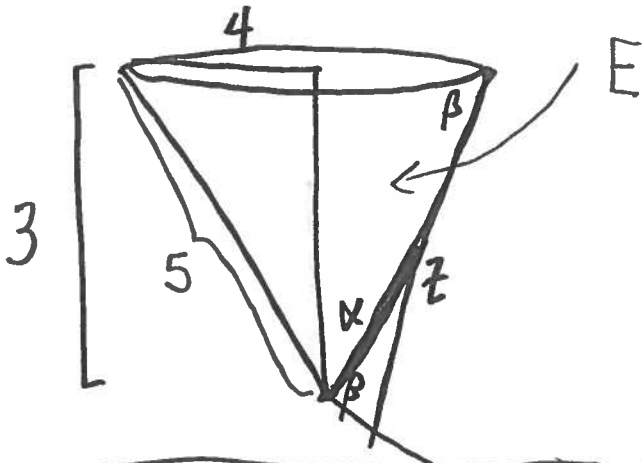


1. Let $f(x, y, z)$ be a scalar field and let F be a vector field on \mathbb{R}^3 . For each of the following, indicate whether it is a scalar-valued function, a vector field, or if the description is meaningless/not defined. grad denotes ∇



- ~~div(f)~~ grad(f) **V.F.**
- curl(F) **V.F.** div(grad(f)) **S.F.**
- curl(grad(f)) **V.F.** grad(div(F)) **V.F.**
- curl(curl(F)) **V.F.** ~~div(div(F))~~
- ~~grad(grad(f))~~ div(curl(grad(f))) **S.F.**
- ~~curl(div(grad(f)))~~

2. Set up an integral that computes the volume of the region E using cylindrical coordinates.



$$z = r \tan \beta = r \frac{3}{4}$$

$$\int_0^{2\pi} \int_0^4 \int_{\frac{3}{4}r}^3 r \, dr \, d\theta$$

