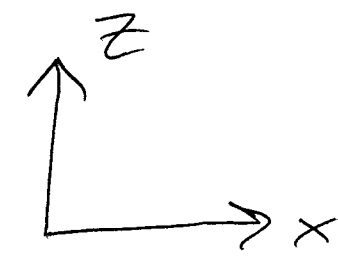


① Let  $C$  be the loop  $\vec{r} = \langle 7 \cos t, 4, \sin t \rangle$  from  $t=0$  to  $t=2\pi$ . Find a surface  $S$  and an orientation  $\vec{N}$  such that  $C = \partial S$ . HW  
55

More precisely, give a parametrization  $\langle x, y, z \rangle = \langle \boxed{?}, \boxed{?}, \boxed{?} \rangle$  for  $(u, v) \in \boxed{?}$  of  $S$  and give a formula  $\vec{N} dA = \boxed{?} du dv$  (with the  $\pm$  ambiguity resolved).

Hint: Plot  $C$ 's  $(x, z)$ -coordinates & use right-hand rule.



② For the field  $\vec{F} = \langle y^3, z^3, x^3 \rangle$  & your  $S$  &  $\vec{N}$  from ①, verify that both sides of the Stokes' Theorem equation are actually equal.