

time integrated

$$\int_{\mathcal{C}} \alpha \cdot ds$$

1)

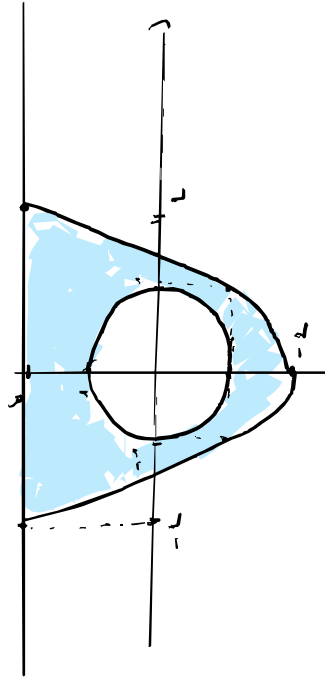
Via Stokes' theorem:  $\iint \mathbf{A} \cdot d\mathbf{S}$ , we have to compute:

$d\mathbf{S}$ :



$$\int_{-2}^2 (2 - (x^2 - 4)) \, dx = \frac{32}{3}$$

$$\int_0^{2\pi} d\theta = 4\pi$$



$$\text{So: } \boxed{\frac{32}{3} - 4\pi}$$