29.8

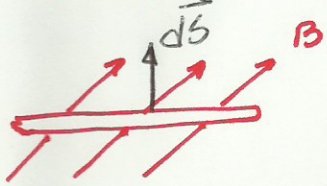
① Datos

$r = 75\ cm$

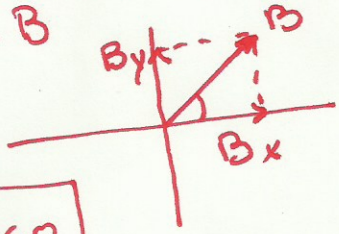
$B(t) = 1.4\, e^{(-0.057\ s^{-1})t}$

$N = 1$

② $\mathcal{E}_i = -N \dfrac{d\phi_B}{dt}$

③ 

se debe colocar el vector $d\vec{S}$, notar que la componente paralela del vector B no aporta al flujo de B



$\operatorname{sen}\theta = \dfrac{B_y}{B_x}$

$\boxed{B_y = B \operatorname{sen} 60}$

④ $\phi_B = \int \vec{B}_y \cdot d\vec{S} = \int B_y\, dS \cos\phi = B_y \int dS \cos 0^\circ = B_y S = B_y \pi r^2$

$\phi_B = (B \operatorname{sen} 60)(\pi r^2) = B(0.86)(3.14)(0.5625) = 1.518\, B$

⑤ $\mathcal{E}_i = -\dfrac{d\phi_B}{dt} = -\dfrac{d}{dt}(1.518)(1.4)e^{(-0.057)t} = (1.518)(1.4)(0.057)\, e^{(-0.057)t}$

$\mathcal{E}_i = 0.12\, e^{(-0.057)t}$