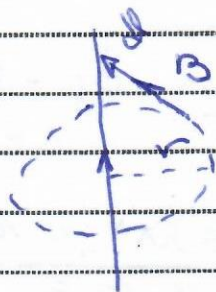


29.7

Datos

$$\frac{di}{dt}$$

i



Aplicar la ley de Ampere

$$\int \vec{B} \cdot d\vec{l} = 40i$$

$$\int |\vec{B}| dl \cos 0 = 40i$$

$$B \int dl = 40i$$

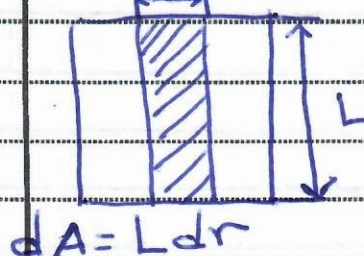
$$B l = 40i \rightarrow B 2\pi r = 40i$$

$$B = \frac{40i}{2\pi r}$$

Donde  $l$  es la longitud del contorno amperesno.

$$\phi_B = \int \vec{B} \cdot d\vec{A} = \int B l dA \cos 0$$

asumiendo  $d\vec{A}$  entrando en el plano de la hoja  $\theta = 0$



$$dA = L dr$$

$$d\phi_B = B \cdot dA = \frac{40i}{2\pi r} L dr$$

$d\phi = \frac{40i}{2\pi r} L dr$  el total serian  $\phi_B = \int_a^b \frac{40i L}{2\pi r} dr$

$$\phi_B = \frac{40i L}{2\pi} \int_a^b \frac{dr}{r} = \frac{40i L}{2\pi} \ln b - \frac{40i L}{2\pi} \ln a$$

$$\phi_B = \frac{40i L}{2\pi} \ln(b/a)$$

derivando  $\phi$  con respecto a  $t$

$$\mathcal{E}_i = -N \frac{d\phi}{dt} = -\frac{40i L}{2\pi} \ln(b/a) \frac{di}{dt}$$