Magnetic Flux

$$\Phi_B = \int \bar{B} \cdot d\bar{A}$$

FARADAY'S LAW

$$\mathcal{E} = -\frac{d\Phi_B}{dt}$$

The emf along a round-trip path is equal to the rate of change of magnetic flux on the area encircled by the path.

$$\mathcal{E} = \oint \bar{E} \cdot d\bar{\ell} = -\frac{d\Phi_B}{dt}$$

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A) $\Phi_B = \int \vec{B} \cdot d\vec{A}$

$= B(\pi r^2)$

for this problem,
$\pi r^2 = 3\ cm^2$

B) $\mathcal{E} = \dfrac{\Delta \Phi_B}{\Delta t} = 9\text{E}{-4}\ V$

C) $I = \dfrac{\mathcal{E}}{R} = 1.8\text{E}{-3}\ A$