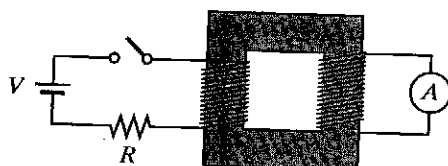


A sphere of radius R is placed near a long, straight wire that carries a steady current I . The magnetic field generated by the current is B . The total magnetic flux passing through the sphere is

1. $\mu_0 I$.
2. $\mu_0 I / (4\pi R^2)$.
3. $4\pi R^2 \mu_0 I$.
- ④ zero.
5. need more information

No net magnetic flux through closed surface
 $\oint \vec{B} \cdot d\vec{A} = 0$

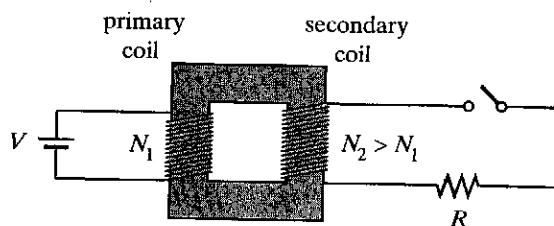
The primary coil of a transformer is connected to a battery, a resistor, and a switch. The secondary coil is connected to an ammeter. When the switch is thrown closed, the ammeter shows



1. zero current.
- ② a nonzero current for a short instant.
3. a steady current.

Current is induced while flux is changing

When the switch is closed, the potential difference across R is



1. $V N_2 / N_1$.
2. $V N_1 / N_2$.
3. V .
- ④ zero.
5. insufficient information

Steady voltage
 \Rightarrow no change \Rightarrow no induced EMF