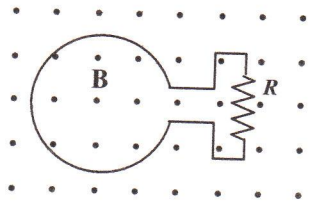
The figure shows a uniform, 3.0-T magnetic field that is normal to the plane of a conducting, circular loop with a resistance of 1.5 Ω and a radius of 0.024 m. The magnetic field is directed out of the paper as shown. **Note**: The area of the non-circular portion of the wire is considered negligible compared to that of the circular loop. For the following questions, show your work and circle the correct answer.



(A) What is the magnitude of the average induced emf in the loop if the magnitude of the magnetic field is doubled in 0.4 s?

a. 0.43 V
b. 0.65 V
c. 0.014 V
d. 0.027 V
e. 0.038 V

(B) What is the average current around the loop if the magnitude of the magnetic field is doubled in 0.4 s?

a. 2.8×10^{-3} A, clockwise
b. 4.5×10^{-3} A, clockwise
c. 4.5×10^{-3} A, counterclockwise
d. 9.0×10^{-3} A, clockwise
e. 9.0×10^{-3} A, counterclockwise

(C) If the magnetic field is held constant at 3.0 T and the loop is pulled out of the region that contains the field in 0.2 s, what is the magnitude of the average induced emf in the loop?

a. 8.6×10^{-3} V
b. 9.8×10^{-2} V
c. 2.7×10^{-2} V
d. 5.4×10^{-2} V
e. 6.4×10^{-2} V

(D) If the magnetic field is held constant at 3.0 T and the loop is pulled out of the region that contains the field in 0.2 s, at what rate is energy dissipated in R?

a. 1.8×10^{-2} W
b. 3.6×10^{-2} W
c. 3.8×10^{-3} W
d. 2.7×10^{-4} W
e. 4.9×10^{-4} W