

Section

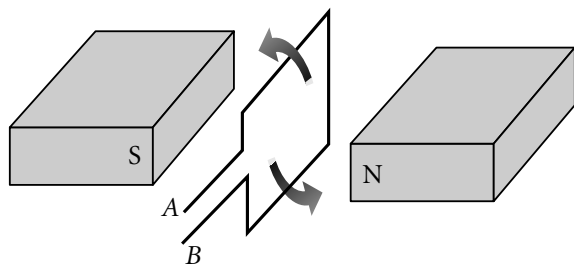
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HOLT PHYSICS

Concept Review

Alternating Current, Generators, and Motors

Refer to the figure below to answer questions 1–3. Points *A* and *B* represent connections to an external circuit.



1. In which direction will the loop current flow? (Circle one.) *A to B* *B to A*

2. Suppose you want to *increase* the current. There are several variables to consider. In each case below, choose the appropriate change for each variable. (Circle one.)

- a. Number of loops: Increase Decrease
- b. Magnetic field strength: Increase Decrease
- c. Rotational speed: Increase Decrease

3. The loop shown above is rotating one complete revolution every second. The square loop has sides of 2.5 cm, and the magnetic field strength is 0.75 T. The loop is connected to an 8.0 Ω external circuit.

a. When (in terms of loop orientation) is induced emf at a maximum?

b. When (in terms of loop orientation) is induced emf at a minimum?

c. How much time passes (in seconds) between maximum emf and zero emf?

d. Using your answers from parts a, b, and c, find the average emf induced in the coil.

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