Flux and Faraday’s Law:

1. A 42.0cm long piece of wire is bent into a single circular coil. The coil is then placed with its area perpendicular to a 0.80T magnetic field. Find the flux through the coil.

2. A 42.0cm long piece of wire is bent into a circular coil with 2 turns. The coil is then placed with its area perpendicular to a 0.80T magnetic field. Find the flux through the coil.

3. A rectangular coil measures 8.0cm by 9.0cm and consists of 220turns.

**Bo**=0.75T t=0.025s **B**=0.35T

Find the emf induced in the coils, and label the polarity of the ends.

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5. A circular coil is placed into a 0.092T magnetic field. The radius of the coil is 4.00cm. The area of the coil is perpendicular to the magnetic field.

a. If the total flux through all turns is 0.044Wb how many turns does the coil have?

b. If the coil is rotated until the angle between the area and the field is 29.0o in 0.25s what average emf

is induced in the coil?

6. A coil of wire has an area of 0.0020m2 and consists of 1000 coils. The coil is placed into a 0.050T magnetic field. What must be the frequency of the rotation of the coil to generate an average emf of 2.0V?

7. A coil consists of 250turns, each with a radius of 4.00cm. The coil is within a perpendicular magnetic field that has a magnitude of 2.70T. The magnetic field is then decreased such that the rate of change of flux through each turn is 0.40Wb/s. What average emf is induced in the coil?

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