SP 212 Worksheet
Lesson 25: Ch. 30.1, Faraday’s Law & Lenz’s Law

1) In the figure, a 130-turn coil of radius 3.0 cm and resistance 5.6 Ω is coaxial with a solenoid of 260 turns/cm and diameter 3.8 cm. The solenoid current drops from 1.7 A to zero in time interval Δt = 34 ms. What current is induced in the coil during this time interval?

2) A square wire loop (N = 1) with side length 2.0 m is perpendicular to a uniform magnetic field, with half the area of the loop in the field (shown below). The loop contains an ideal battery with emf $E_{\text{bat}} = 20$ V. If the magnitude of the field is $B = (0.042 - 0.87t)$ T, with $t$ in seconds, what is (a) the net emf in the circuit, and (b) the direction of the current in the loop?