P6.W – Transformers

1. Match the correct law to each of the statements noting that not all of the laws will be used.

   a. Coulomb's Law
   b. Lenz's Law
   c. Snell's Law
   d. Faraday's Law
   e. None of the above

   A. An induced voltage opposes a change in the magnetic flux.
   B. The magnetic field through a solenoid is uniform.
   C. A changing magnetic flux through a solenoid induces a voltage across the solenoid.

2. For the transformer in Figure 6.3 from the lab manual, calculate the induced voltage V_{out} in terms of μ, N_1, N_2, a_1, L_1, and R. Assume the input voltage is $V_{in} = A_{in} cos\,(\omega t)$.

3. For each of the following input waveforms, what would be the shape of the output from the transformer?

   a. Sine wave
   b. Triangular wave
   c. Square wave