PHYS 212 Sample Test Question

Faraday’s law of induction is given by:

 

1. Describe the meaning of the each term in the above equation including the minus sign.

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2. P7: In Fig. [30-36](http://edugen.wiley.com/edugen/courses/crs4957/halliday9118/halliday9088c30/halliday9118/halliday9088c30/halliday9088c30xlinks.xform?id=halliday9088c30-fig-0036), the magnetic flux through the loop increases according to the relation *ΦB* = 6.0*t*2 + 7.0*t*, where *ΦB* is in milliwebers and *t* is in seconds. (a) What is the magnitude of the emf induced in the loop when *t* = 2.0 s? (b) Is the direction of the current through *R* to the right or left?
 

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| http://edugen.wiley.com/edugen/courses/crs4957/common/art/pixel.gif |

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3. P82: A uniform magnetic field is perpendicular to the plane of a circular wire loop of radius *r*. The magnitude of the field varies with time according to *B* = *B*0*e*-*t*/*t*, where *B*0 and *τ* are constants. Find an expression for the emf in the loop as a function of time.