Pretest: Damped harmonic motion: Energy loss and the quality factor Name _____

A simple harmonic oscillator is set into motion by releasing it from rest at $x = +1.00$ m.

The oscillator is set into motion once again from the same location, except the oscillator now experiences a retarding force that is linear with respect to velocity. As a result, the oscillator does not return to its original starting position, but instead reaches $x = +0.80$ m after one period of oscillation.

A. During the first full oscillation of motion, is it possible to determine what fraction of the oscillator's total energy was dissipated due to the retarding force?

   If so: Determine the fraction of the total energy dissipated during the first full oscillation, and explain your reasoning.

   If not: State what additional information you would need to answer this question, and explain your reasoning.

B. When the oscillator finishes a *second* full oscillation, is it possible to predict the maximum displacement of the oscillator?

   If so: Determine the maximum displacement after the second full oscillation, and explain your reasoning.

   If not: State what additional information you would need to answer this question, and explain your reasoning.