Name _____ Period _____ Date:_____

Pendulum Problem

Tommy visited the Museum of History and Technology with his class. They saw Foucault's Pendulum in Pendulum Hall and it was fascinating to Tommy. He knew from science class that the time it takes a pendulum to complete a full cycle or swing depends upon the length of the pendulum. The formula is given by

$$T = 2\pi\sqrt{\frac{L}{32}}$$

where T represents the time in seconds and L represents the length of the pendulum in feet. He timed the swing of the pendulum with his watch and found that it took about 8 seconds for the pendulum to complete a full cycle. Help him figure out the length of the pendulum in feet.

1. Identify the variables.
   a. The variable, T , represents _____.

   b. The variable, L , represents _____.

2. What do you think could affect the full cycle of the pendulum?

3. Tommy thought that a pendulum that took a full 20 seconds to complete a full cycle would be very dramatic for a museum.

   a. How long must that pendulum be?

   b. If ceilings in the museum are about 20 feet high, would this pendulum be possible?