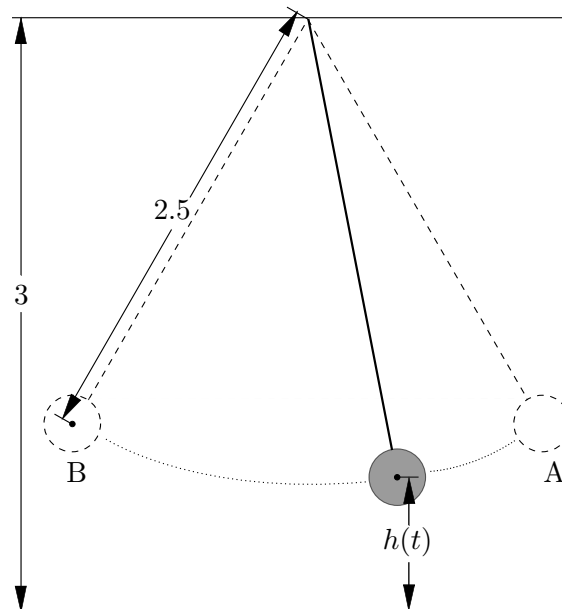


7. [8 points] The pendulum drawn below is a sphere that is hung from the ceiling by a 2.5 meter long piece of string that is attached to the center of the sphere. The ceiling is 3 meters above the floor, and the pendulum is swinging in between the points A and B as shown in the picture below.



Let  $H = h(t)$  be the distance (in meters) between the center of the pendulum and the ground at time  $t$  (in seconds). Suppose that the function  $h$  is periodic, and that the midline of  $h$  is the line  $H = 1$ .

- a. [2 points] If it takes two seconds for the pendulum to move from A to B (and also from B to A), what is the period of the function  $h$ ?

Period of  $h =$  \_\_\_\_\_.

- b. [2 points] What is the minimum value of the function  $h$ ?

Minimum value of  $h =$  \_\_\_\_\_.

- c. [2 points] What is the amplitude of  $h$ ?

Amplitude of  $h =$  \_\_\_\_\_.

- d. [2 points] What is the maximum value of the function  $h$ ?

Maximum value of  $h =$  \_\_\_\_\_.