7. [8 points] The pendulum drawn below is a sphere that is hung from the ceiling by a piece of string that is 2.5 meters long. 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 to B to A), what is the period of the function \( h \)?

\[ \text{Solution: } \text{Period of } h = 2 \text{ seconds.} \]

b. [2 points] What is the minimum value of the function \( h \)?

\[ \text{Solution: } \text{Minimum value of } h = 3 - 2.5 = 0.5 \text{ m.} \]

c. [2 points] What is the amplitude of \( h \)?

\[ \text{Solution: } \text{Amplitude of } h = 1 - 0.5 = 0.5 \text{ m.} \]

d. [2 points] What is the maximum value of the function \( h \)?

\[ \text{Solution: } \text{Maximum value of } h = 1 + 0.5 = 1.5 \text{ m.} \]