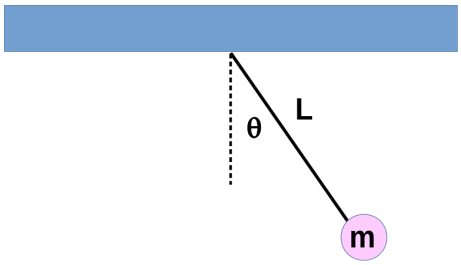
Physics 3210, Spring 2019 Discussion #7

1. The simple pendulum below consists of a massless string of length $L = 20$ cm attached to the ceiling at one end and to a pointlike bob of mass $m$ at the other end. The bob is given an initial displacement of 10° to the right and an initial velocity of 0.5 meters/second to the left.




In class, we found that the general solution of the harmonic oscillator equation can be written as:

$$\theta(t) = A\cos(\omega t + \phi)$$

where $A$ and $\phi$ are constants of integration. Use the initial conditions given above to find a particular solution to the equation of motion $\theta(t)$ in this case. Sketch $\theta(t)$ versus time.