Physics 102 Homework #1

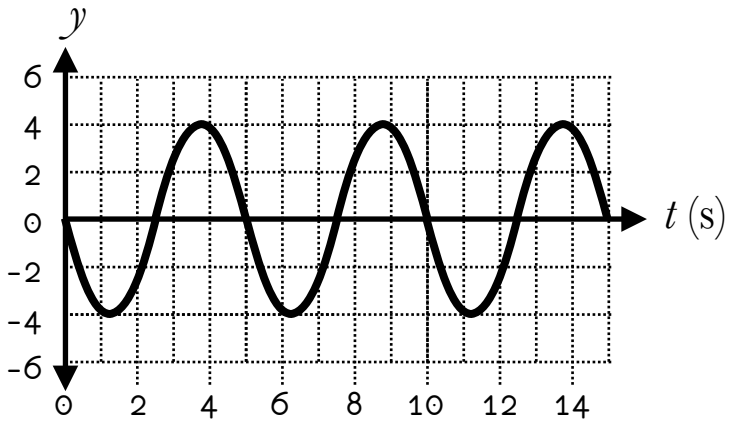
first draft due Wednesday, January 18th
final draft due Sunday, January 22nd

1. If it takes 0.45s for a pendulum to swing back and forth, what is the pendulum's frequency (in Hz)?

2. If an oscillator has a frequency of $f = 6\,\text{Hz}$, how long does it take to undergo 27 cycles?

3. This is a history graph of an oscillator.

a. What is the oscillation's period T?



b. What is the oscillation's amplitude?

c. What is the oscillation's initial phase ϕ_0?

4. The displacement of an oscillator is given by the formula

$$y(t) = 3\cos\left(\frac{\pi t}{4}\right).$$

a. What is the oscillator's amplitude?

b. What is the oscillator's frequency?

c. Give me *one* time t when this oscillator is at its equilibrium point. (There are an infinite number of correct answers! Just give me one.)