PH352, Homework 7. Due Monday, Nov. 14

7.0 Do problems 4.5 (a challenge!) and 4.11 (a real-world engineering problem) in Pain.

7.1 Show that the term [Tension/linear mass density, or T/ ρ (Pain) or T/ μ ("Waves" notes)] in the wave equation has the right units to be the square of a speed.

7.2 The speed of waves on a certain string is 2 m/s. Another string has a mass per unit length that is 4 times as great as the first string and a tension that is 2 times as great. What is the speed of waves on the second string?

7.3 Calculate the frequency, the wavelength and the wave speed of a wave given by

$$\psi = (0.1 \text{ cm}) \cos[(8 \text{ s}^{-1}) \text{ t} + (4 \text{ m}^{-1}) \text{ x}]$$

7.4 The figure below shows a "photograph" of a string carrying a traveling wave moving from left to right. For each of the points marked, state whether the string was moving upwards or downwards when the photograph was taken. Was point A or point B moving faster?

