PHYS 211 String Vibrations

The wave speed on a stretched string is given below in terms of tension and linear density of the string. ()

1. Show that the above equation is correct unit wise.

2. A string fixed at both ends is 8.40 m long and has a mass of 0.120 kg. It is subjected to a tension of 96.0 N and set oscillating.
(a) What is the linear density of the string?
(b) What is the speed of the waves on the string?
(c) What is the longest possible wavelength for a standing wave?
(d) Give the frequency of that wave with the longest possible wavelength?
(e) Sketch this mode of vibration, and two other higher modes of vibrations.