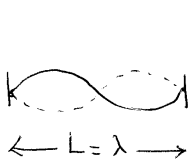
Phys10-2Rec
Quiz#1-Sect.22
Chapter 16

Name: Key Id:

A stretched string of length L = 2.0 m vibrate in its second harmonic when driven by an oscillator of frequency f = 100 Hz.

(a) What is the speed of the wave in the string?



$\lambda = 2\ m$

$f = 100\ Hz$

$v = \lambda f = \boxed{200\ m/s}$

OR $f_2 = 2\frac{v}{2L} = \frac{v}{L} \Rightarrow v = f_2 \times L = 200\ m/s$!

(b) What oscillator frequency will set up standing waves in the same string with five segments?

$f_1 = \frac{f_2}{2} = 50\ Hz$

$f_5 = 5 f_1 = \boxed{250\ Hz}$