**Quiz 7 – PH241** **Name**_____ ☐ **Pledged**

$L = \frac{n\lambda}{2}$ $v = f\lambda$ $f = \frac{nv}{2L}$ $T = \frac{1}{f}$
**for a standing wave on a string**

(A) If a human being can hear up to 20000 Hz, how many overtones of a low C (f=32.2 Hz) can be heard by the human ear?

(B) Assume the length of the string is 2.4 m that produces this fundamental low C. What is the wavelength? What is the speed of the standing wave?

A) $f = \frac{nV}{2L} = nf_1$ $20000 = n(32.2)$

$n = 621$

B) fundamental is $n=1$

$L = \frac{1\lambda}{2}$ so $\lambda = 2L = 4.8\,m$

$V = f\lambda = (32.2\,Hz)(4.8\,m) = 155\,m/s$