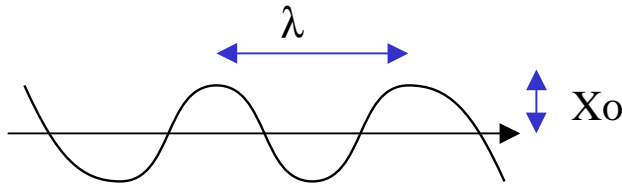


# Physics 113 -Lecture 1

## Wave Properties (Review)



Amplitude  $X_0$   
 Wavelength  $\lambda$   
 Velocity  $v$   
 Frequency  $f$

$$\lambda f = v$$

## Waves can be Transverse, Longitudinal or Both

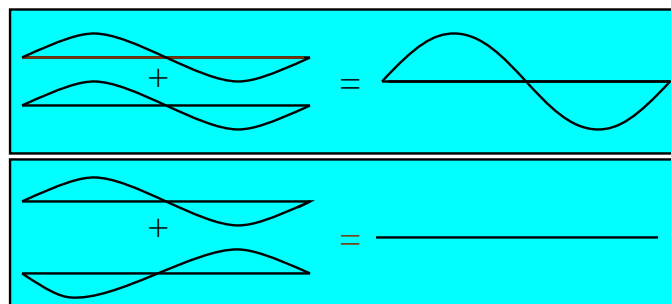
$$I \propto X_0^2$$

$$\frac{I_1}{I_2} = \frac{r_2^2}{r_1^2}$$

## Reflection



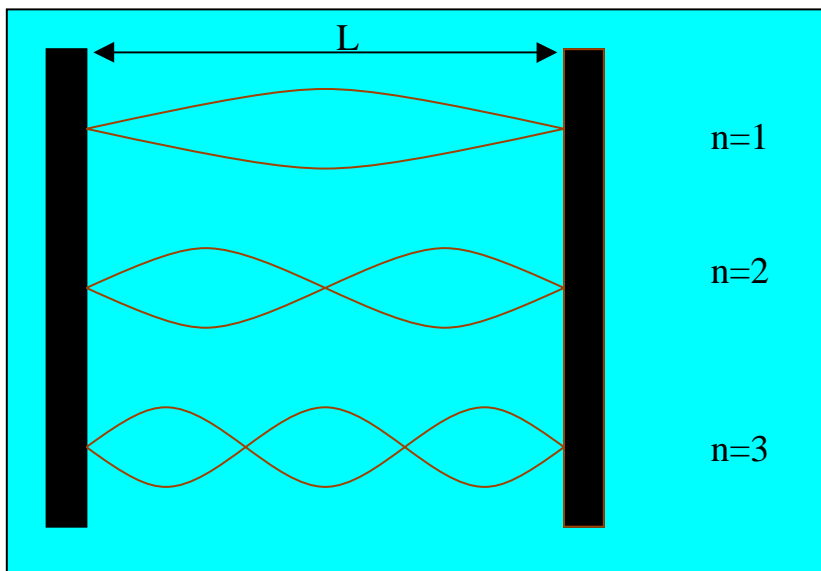
**Superposition : add displacements of two waves to get resulting wave**



## Wave Velocity in Taut String

$$v = \sqrt{\frac{F_T}{\frac{m}{L}}}$$

## Standing Waves (String)



$$\lambda_n = \frac{2L}{n} \quad n = 1, 2, 3, \dots$$
$$f_n = \frac{n v}{2L}$$