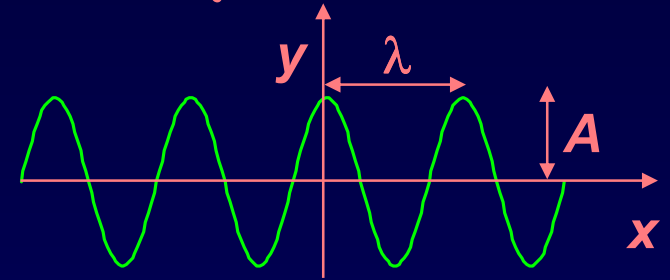# Review: Wave Summary

The formula $y(x,t) = A\cos(kx - \omega t)$ describes a harmonic plane wave of amplitude *A* moving in the *+x* direction.

For a wave on a string, each point on the wave oscillates in the *y* direction with simple harmonic motion of angular frequency ω.

The wavelength is $\lambda = \dfrac{2\pi}{k}$; the speed is $v = \lambda f = \dfrac{\omega}{k}$

The intensity is proportional to the square of the amplitude: $I \propto A^2$

Superposition

Because the wave equation is linear, arbitrary combinations of solutions will also be solutions. For unequal intensities, the maximum and minimum intensities are:

$$I_{max} = |A_1 + A_2|^2$$

$$I_{min} = |A_1 - A_2|^2$$