

PHY132S - Class 1 - January 5, 2009

Classifications:

① Mechanical sound, water
string, etc.

② Electromagnetic - later

③ Matter wave nature of
particles e.g. electrons
Not part of PHY132

"Wave" medium: you

wave travels through medium.

Sound wave: medium air

String: medium string

Another classification:

① Disturbance // direction of propagation: LONGITUDINAL (sound)

② Disturbance \perp direction of propagation TRANSVERSE (string)

Wave Speed speed of disturbance.

relative to the medium

sound ~ 343 m/s

relative to the air

§20.1 1D Waves

① Disturbance as a function of position. SNAPSHOT

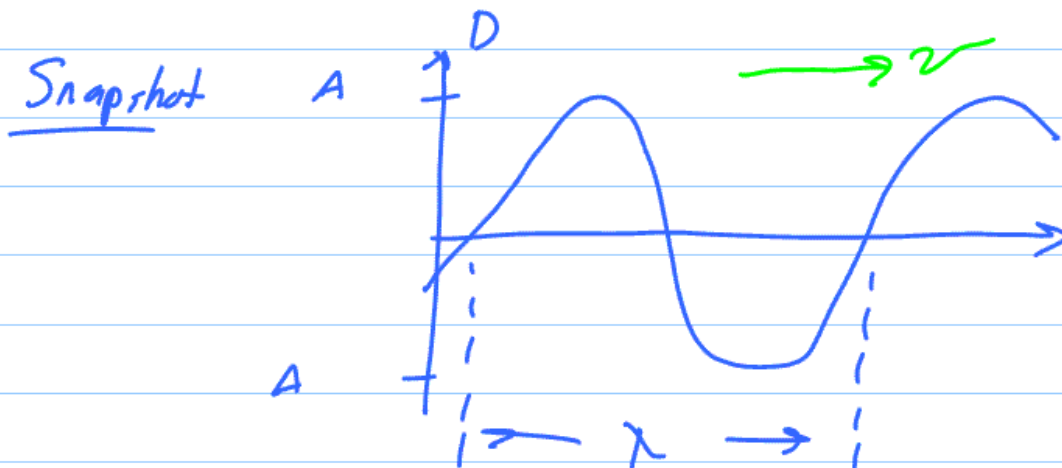
② Disturbance as a function
of time HISTORY

Terminology "disturbance"

DISPLACEMENT $D(x, t)$

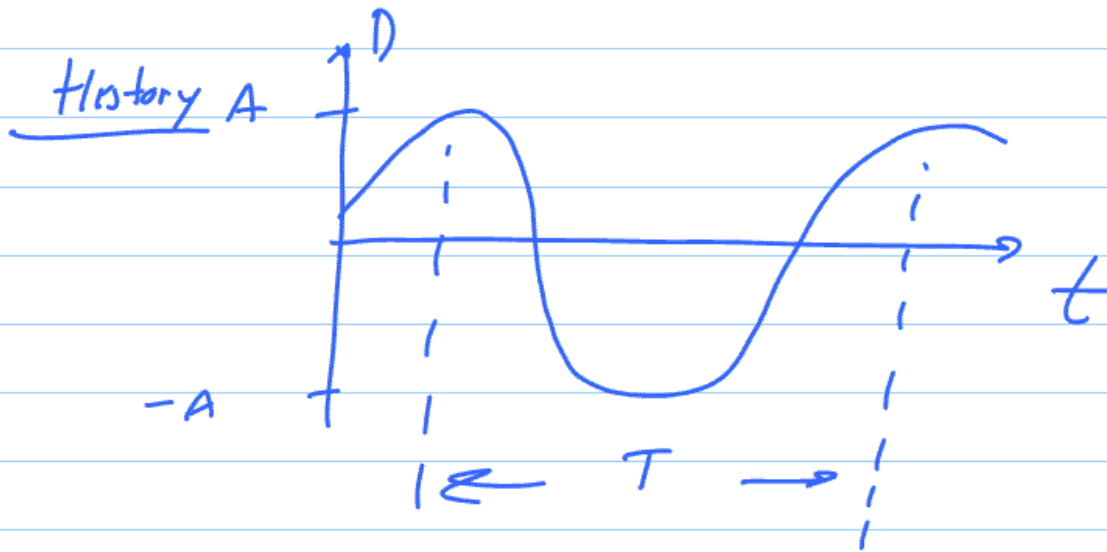
§20.3 - Sinusoidal Waves

Source: Simple Harmonic Motion



A = amplitude

λ = wavelength



$T = \text{period}$

$$\text{frequency } f = \frac{1}{T}$$

$$\text{angular frequency } \omega = 2\pi f$$