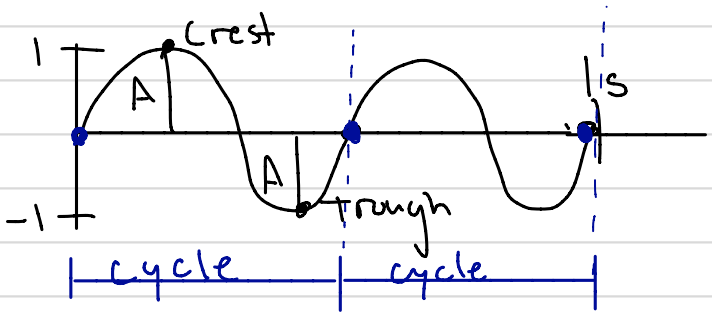
Summary:

- Physically, sound is waves in the air created by variation in air pressure
- Waves:
  - cycle: one repetition of a wave pattern
  - frequency: (f) # of cycles per second (measured in Hertz-Hz)
  - Amplitude: (A) the distance from the center line to the top of a crest or bottom of a trough (usually measured in decibels dB)



f = 2 Hz
A = 1 dB

- Sound
  - loudness = variation in air pressure = amplitude of wave
  - pitch = # of variations per second = Hz = cycles/second

- pure tone = sine wave = sound w/ constant frequency
  - represented mathematically by sine function:

$$s(t) = A\sin(2\pi ft)$$, A = amplitude (pressure - volume in dB)
t = time (seconds)
f = frequency (Hz)

- Superposition = Any sound is a sum of pure tones

Ex: $s(t) = \sin(2\pi \times 200t) + \sin(2\pi \times 400t) + \sin(2\pi \times 800t)$
$= 200\,Hz + 400\,Hz + 800\,Hz$ (sum of 3 pure tones)