**Chapter 12 - Waves**

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| **Basic Waves:** | Symbols and units:  λ - Wavelength (m)  f - Frequency (Hz)  v - Wave speed (m/s)  T - Period (s) |
| **Standing Waves**  4Antinodes = 1 λ  4Antinodes or 4Antinodes | Symbols and units:  *L* - Length of standing wave (m)  λ - Wavelength (m)  n - Number of quarter wavelengths |
| **Doppler:**  Moving Source: Moving Observer: | Symbols and units:  f' - Shifted Frequency (Hz)  f - Original Frequency (Hz)  v - Speed of sound (m/s)  us - Speed of source (m/s)  uo - Speed of observer (m/s) |