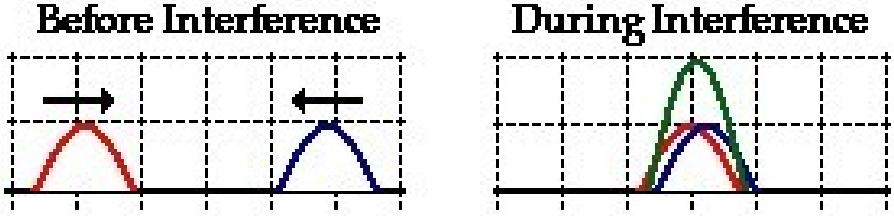
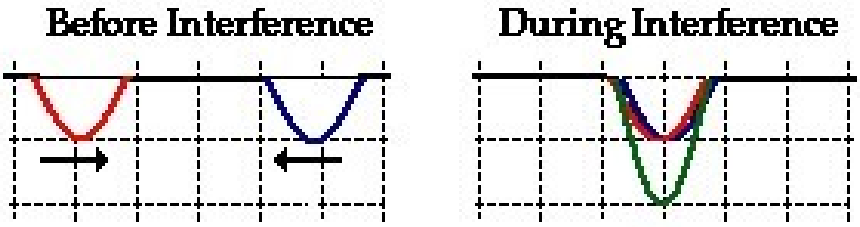
⇨ Principle of Superposition: The resultant displacement of a given particle is equal to the sum of the displacements that would have been produced by each wave acting independently.

- Constructive interference results when two or more waves interfere to produce a resultant displacement greater than the displacement caused by either wave itself.





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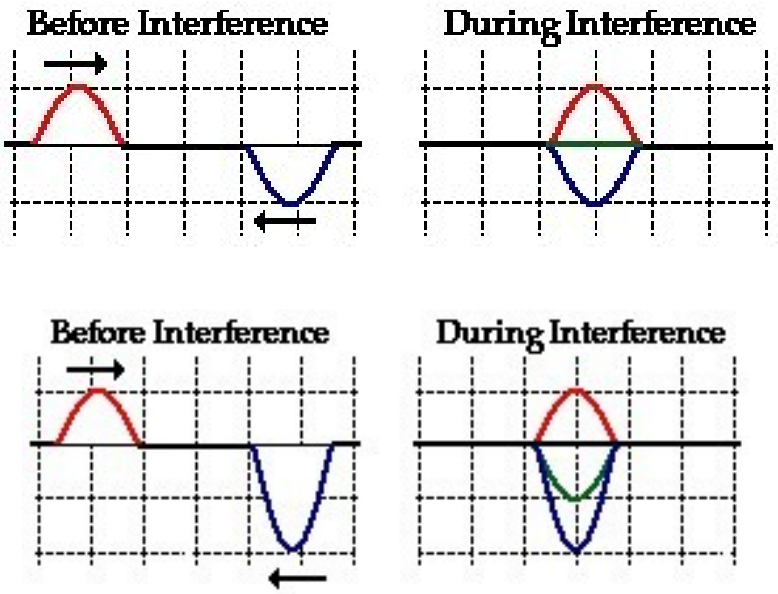
- Destructive Interference is when the resultant displacement is smaller than the

displacement that would be caused by one wave by itself.



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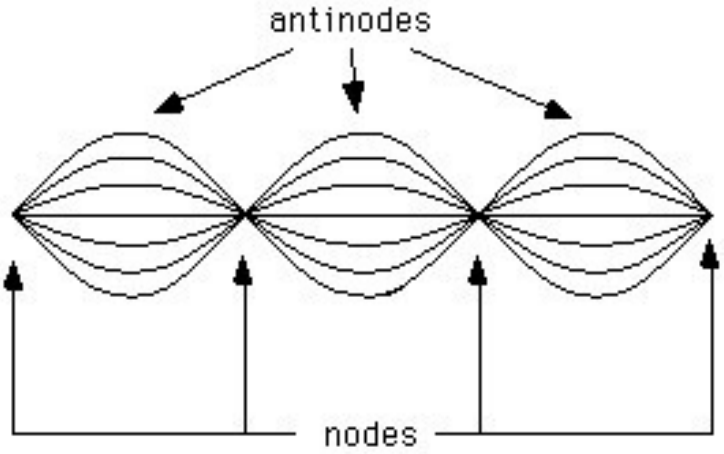
Standing Waves: Interference in One Dimension

⇨ A standing wave interference pattern occurs if interfering waves have the same amplitude, wavelength, frequency, and are traveling in opposite directions.

- Called a standing wave for short.



electron4.phys.utk.edu/ 141/dec1/December%201.htm

⇨ The node, or nodal point , is where crests and troughs of equal amplitude interfere destructively. For one-dimensional waves the fixed ends are nodal points.

⇨ The antinodes, or loops, are areas of constructive interference.

⇨ The number of nodal points for a given medium depends on the physical structure of that medium, thus only certain frequencies will produce a standing wave pattern. Such frequencies are resonance frequencies for that medium.