

Interference

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- Interference refers to what happens when two waves pass through the same region of space at the same time.

Principle of Superposition

- Given two or more waves traveling through the same medium simultaneously, the resultant displacement at any point is the algebraic sum of the displacements of the individual waves (a crest is considered positive and a trough negative).

Constructive Interference

- During constructive interference the resultant displacement is greater than that of either pulse. The wave displacements of the two (or more) waves are in the same direction (either positive or negative).
- Maximum constructive interference occurs at 0 degrees when the waves are in phase and crest superposes on crest and trough superposes on trough.
- “Antinode” is the place of max displacement.

Destructive Interference

- Destructive interference occurs when two or more waves oppose one another.
- Maximum destructive interference occurs at 180 degrees (e.g., crest meets trough).
- Nodes occur at points of max destructive interference.