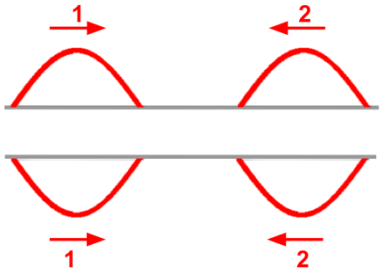
Wave Interference
Video Notes

Interference:

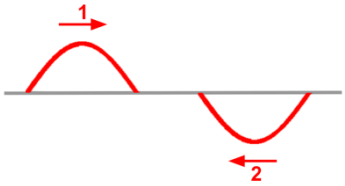
The phenomenon that occurs when two pulses meet while traveling in opposite directions along the same medium.

Two Types:

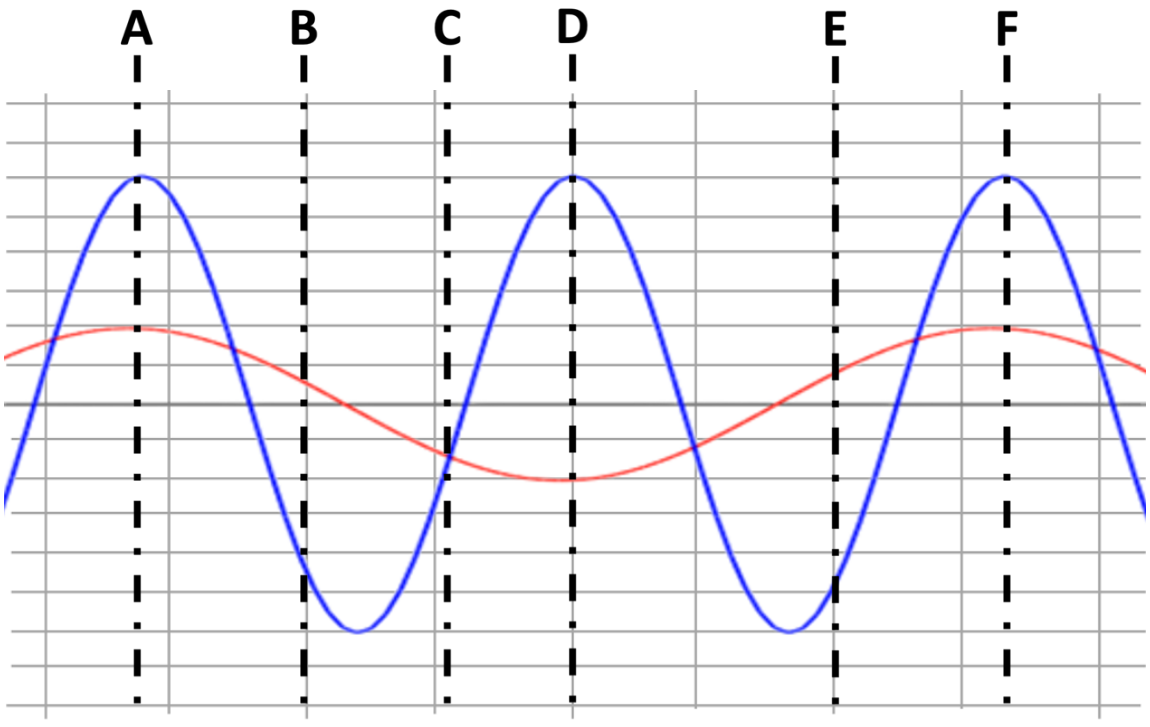
Constructive Interference: occurs when both pulses displace the medium in the same direction – both upward or both downward.



Destructive Interference: occurs when the displacement is in opposite directions.



Interference of Waves

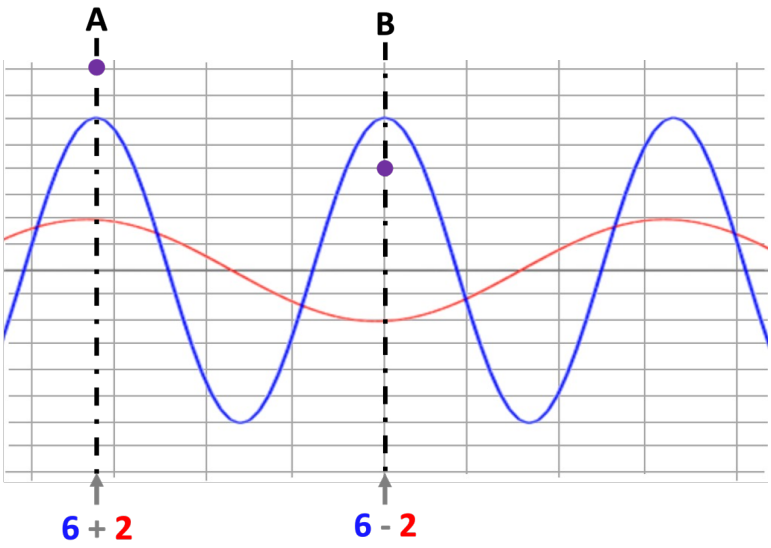


Constructive Interferene Points: A, C, and F

Destructive Interferene Points: B, D, and E

Principle of Superposition

- Wave interference causes the displacement of the medium to be momentarily changed.
- The resulting displacement at any location can be predicted using the **principle of superposition**.
- The resulting displacement at any location is the sum of the displacements caused by each individual wave at that location.
- At A: the resulting displacement is 8 units (6 units up from the blue wave and 2 units up from the red wave.
- At B: the reultant displacement is 4 units .



By applying the principle of superposition to several points along the medium, you can determine the displacement at each location and an estimated shape of the resultant wave at that moment in time. This is shown in the diagram.