

Phase

Phase of a sound and how it can influence a recording

- Interference
- Phase in Recording Environments

Sound waves occur in cycles; that is, they proceed through repetitions. Phase is defined as how far along a waveform is in its current cycle.

The starting point of a wave is 0 degrees, the peak of a wave is 90 degrees, the next neutral pressure point is 180 degrees, the peak low-pressure zone is 270 degrees, and the pressure rises to zero again at 360 degrees.

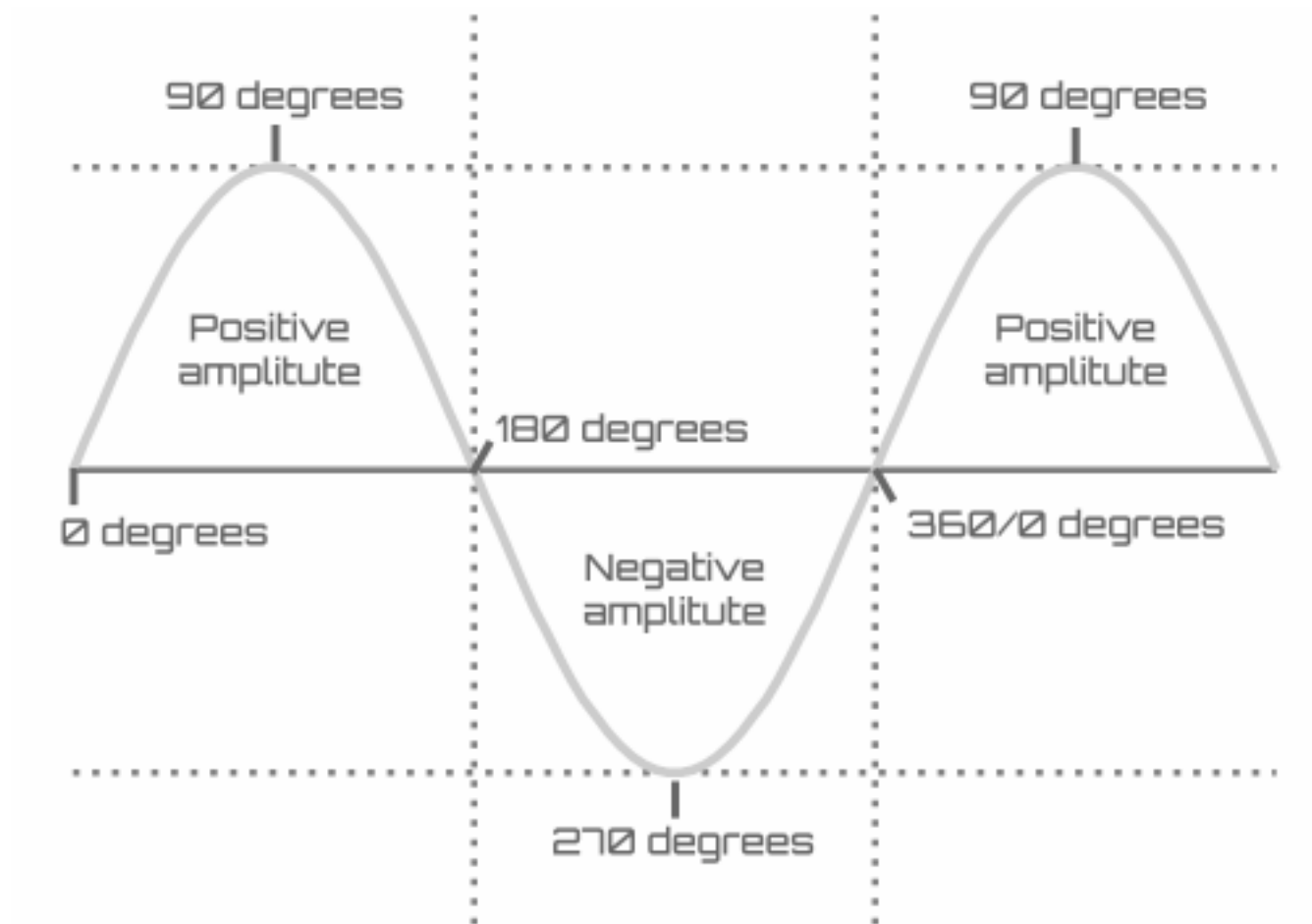


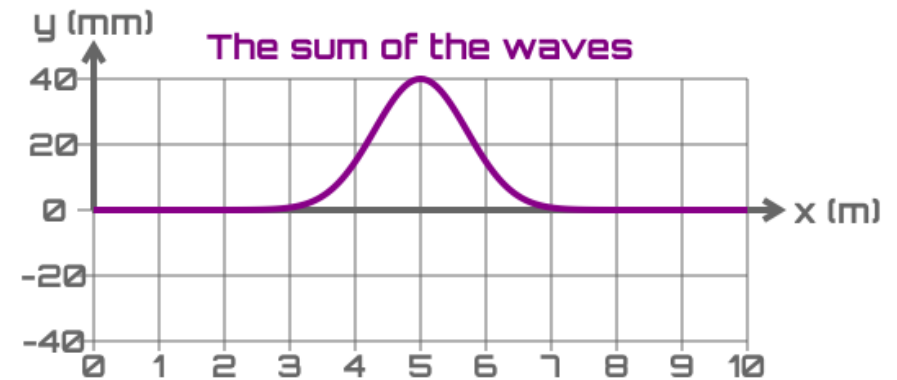
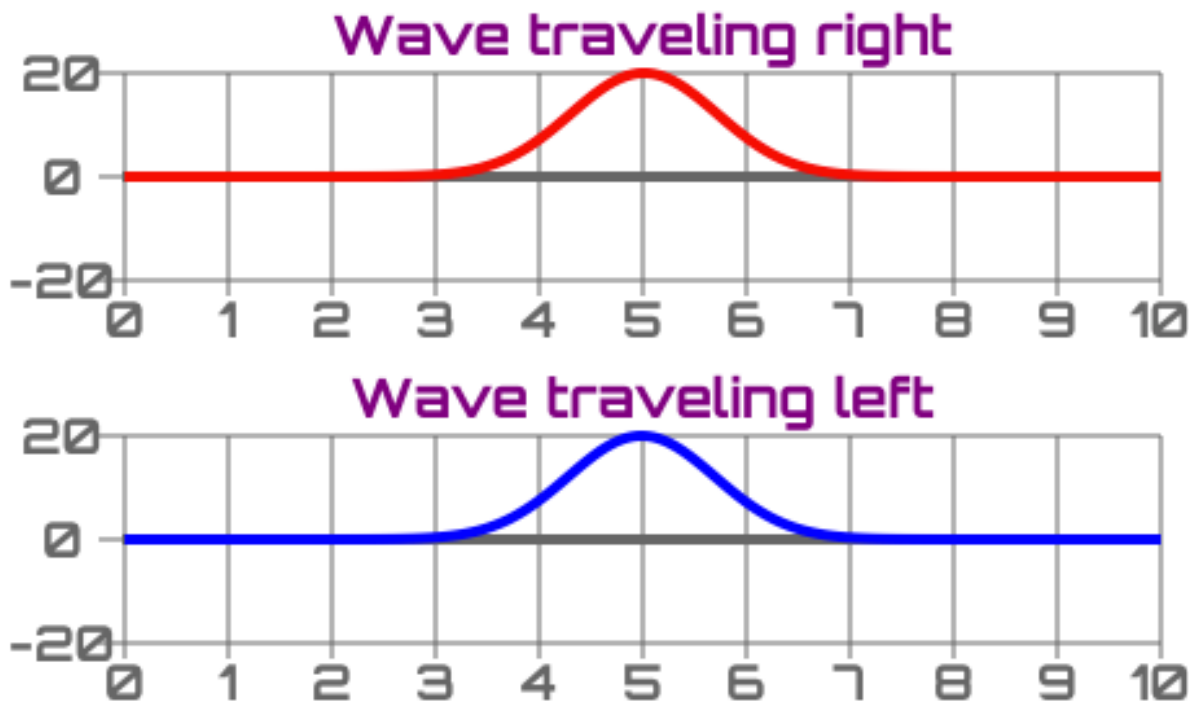
Figure above - Graph representing the different phases of a wave

Interference

Constructive Interference

If **two or more** waveforms are involved in producing a sound, their relative amplitudes can often be different at any one point in time.

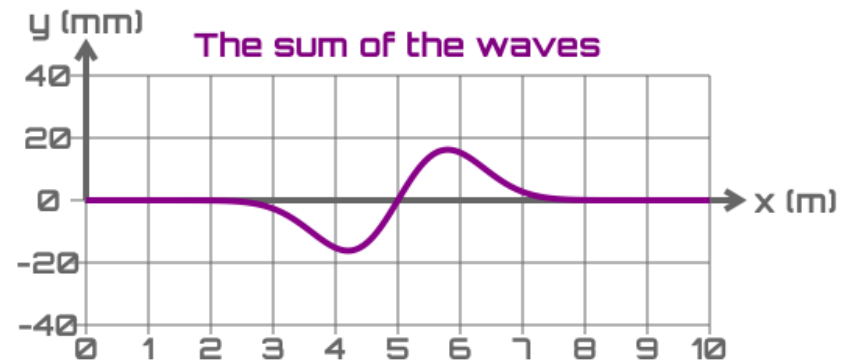
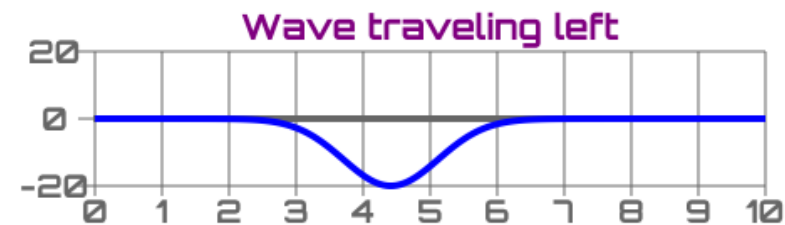
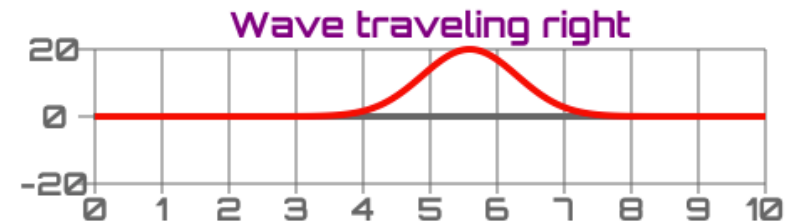
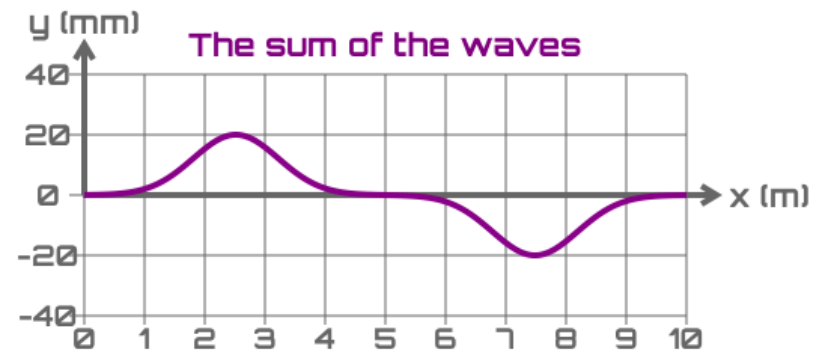
If the waves are completely in phase they will combine to make a new waveform with the same frequency but **double** the amplitude. This is known as **constructive interference**.



Interference

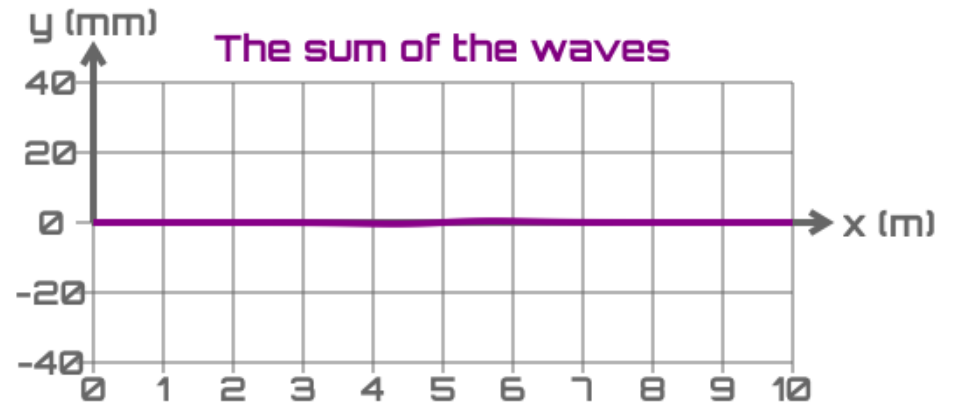
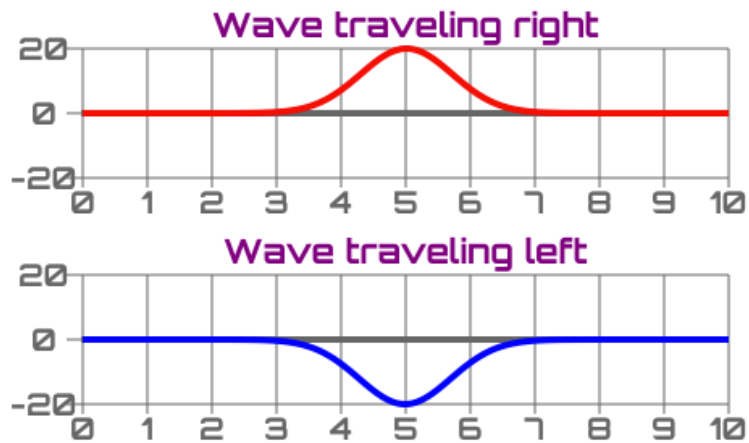
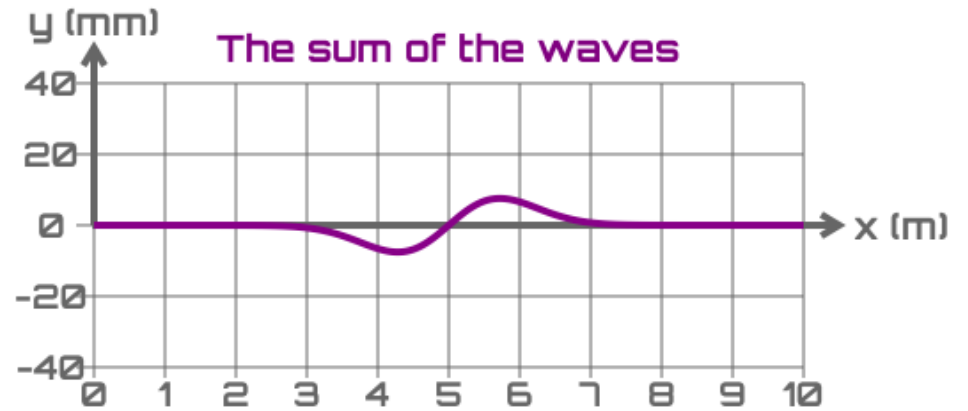
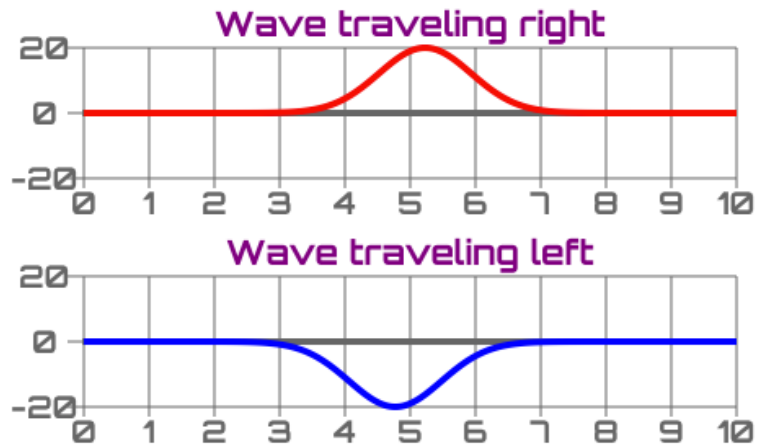
Destructive Interference

If the same two waves are combined while being completely out of phase by 180 degrees, they will cancel each other out resulting in no **amplitude**. This is known as **destructive interference**.



Interference

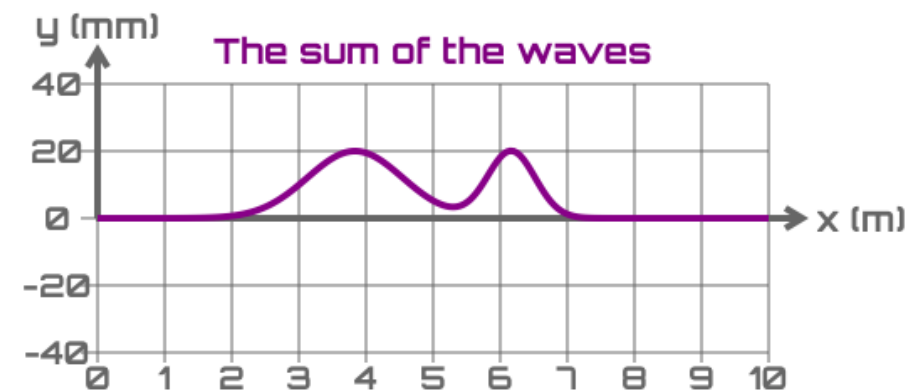
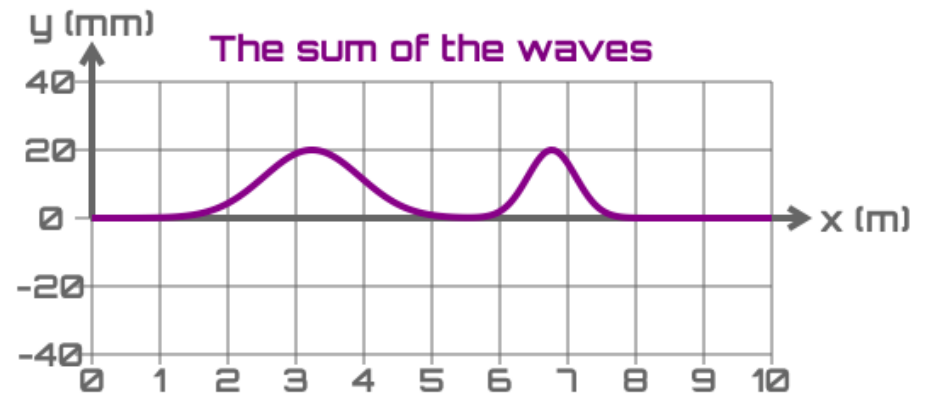
Destructive Interference



Interference

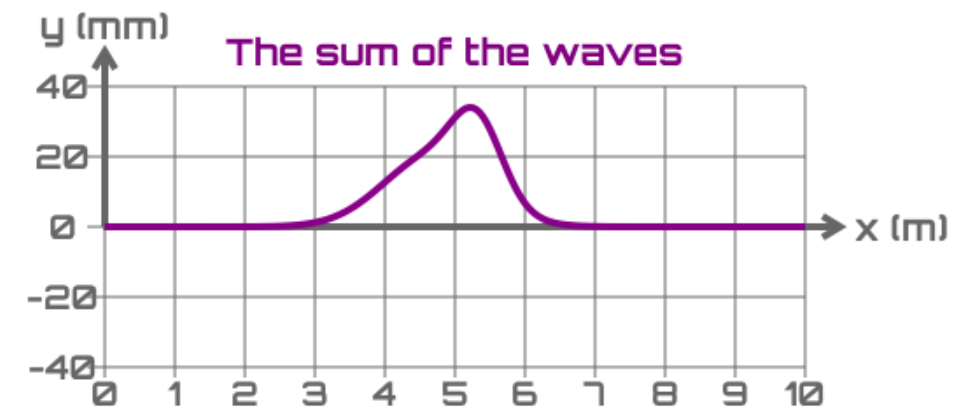
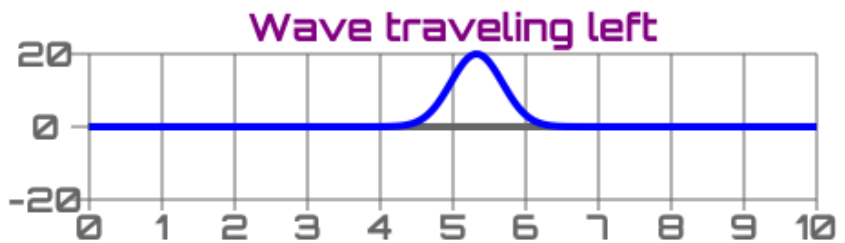
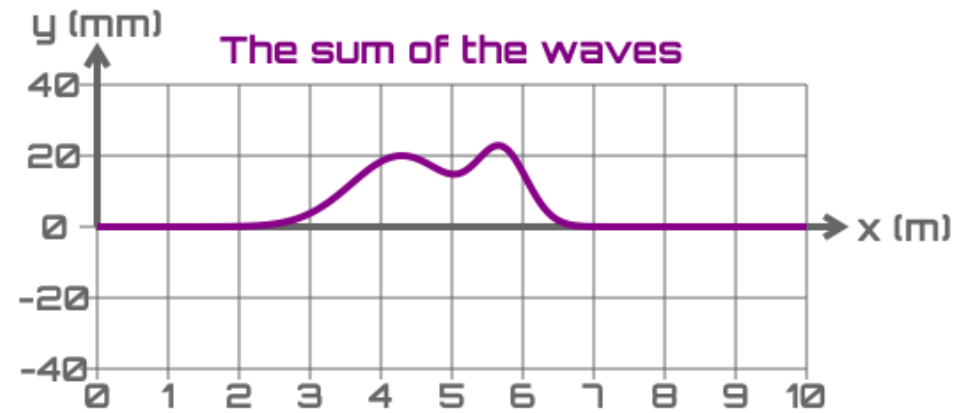
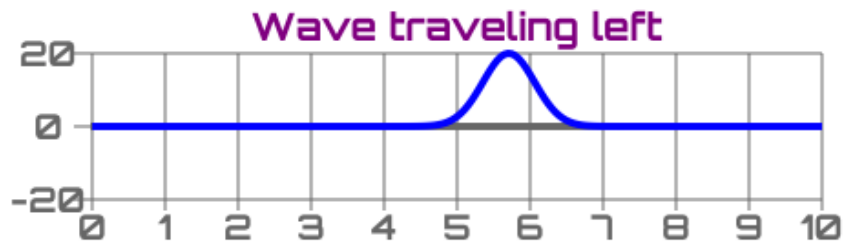
Phase Shift

When two sound waves with the same frequency but different starting points combine, the resulting wave is said to have a **phase shift**. The new wave will still have the same frequency as the original wave but will have increased or decreased amplitude depending on the degree of phase difference.



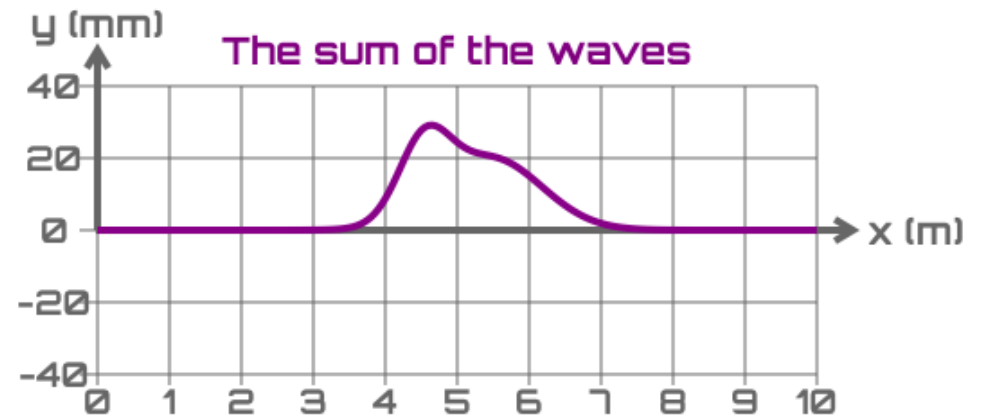
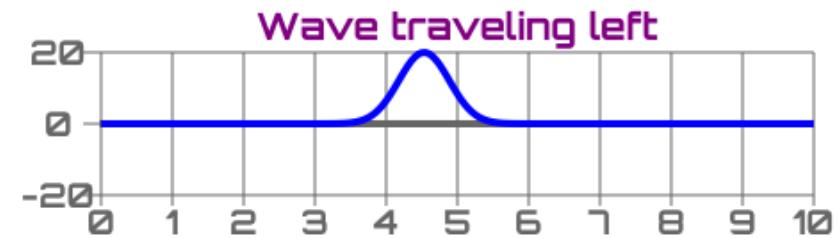
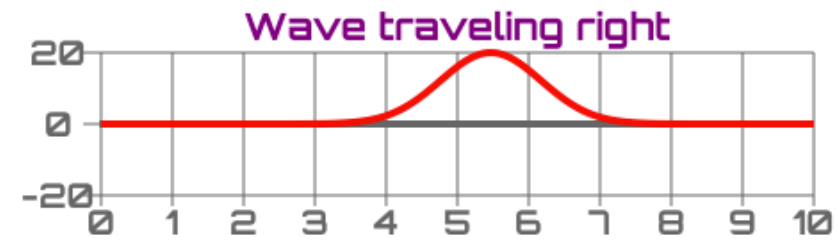
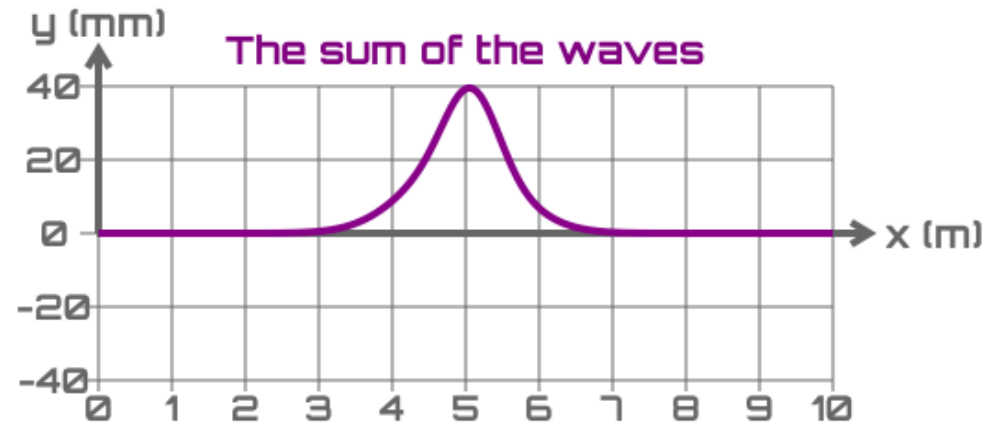
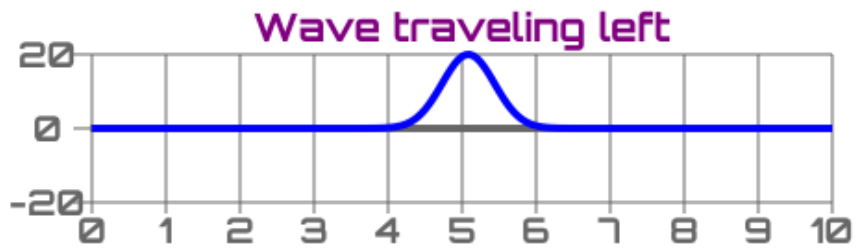
Interference

Phase Shift



Interference

Phase Shift



Interference

Phase Shift

