

Distinguish, differentiate, compare and explain what is the main difference between Stationary Wave and Progressive Wave. Comparison and Differences.

Transverse and longitudinal waves are progressive, they appear to move to the left or right. Two similar progressive waves of the same frequency and amplitude travelling in opposite directions can interfere or superpose to form a stationary or standing wave. Nodes are points on a stationary wave where the particle displacement is zero. Antinodes are points where the particle displacement is of maximum amplitude.

Difference between Stationary Waves and Progressive Wave

S.No.	Stationary Wave	Progressive Wave
1	Waveform does not move but has nodes at fixed places, energy is not carried away.	Waveform moves through the medium, carrying energy, but not the medium, with it.
2	The amplitude varies from zero at a node to a maximum at an antinode.	In traveling waves, the amplitude is the same for all particles along the wave.
3	All the particles between two adjacent nodes are in phase.	Over one wavelength all particles have different phases.