

Mechanical Waves

One dimensional equation $\frac{\partial^2 y}{\partial x^2} = \frac{1}{v^2} \frac{\partial^2 y}{\partial t^2}$ where $v = \sqrt{\frac{\text{elastic property}}{\text{inertial property}}}$

The solution has the general form $y = f(x \pm vt)$

Very important: y is the position of the **particles of the medium** in which the wave is traveling. So this function gives the y coordinate of a particle located x distance from origin at time t . For transverse waves, we look only at a string. Hence the shape of the string is that of the wave itself, and at x , we have only one particle because we have a linear medium.

