

Answer on Question #51190, Physics, Mechanics | Kinematics | Dynamics

*In the wave equation  $y = A \sin(wt + kx)$ , the quantity  $(wt + kx)$  represents the symbols have the usual meaning*

Answer:

$$y(t, x) = A \cdot \sin(\varphi_0 + \varphi(t) + \varphi(x))$$

A is the amplitude,  $\varphi_0$  is the initial phase,  $\varphi(t)$  time defined phase,  $\varphi(x)$  space defined phase.

And the sum of these phases is called just as phase.

$$\varphi_0 + \varphi(t) + \varphi(x) = \varphi$$

In this problem

$$y(t, x) = A \cdot \sin(wt + kx)$$

$$\varphi = wt + kx$$

It is the phase of the oscillation in this wave at some time at some point of space.