

A solution to the wave equation is:

$$f(z,t) = A \cos(kz - \omega t + \delta)$$

What is the speed of this wave?

Which way is it moving?

If δ is small (and >0), is this wave “delayed” or “advanced”?

What is the frequency?

The angular frequency?

The wavelength?

The wave number?

A solution to the wave equation is:

$$f(z,t) = \text{Re}[A e^{(kz - \omega t + \delta)}]$$

What is the speed of this wave?

Which way is it moving?

If δ is small (and >0), is this wave “delayed” or “advanced”?

What is the frequency?

The angular frequency?

The wavelength?

The wave number?

A complex solution to the wave equation in 3D is:

$$\tilde{f}(\mathbf{r}, t) = \tilde{A}e^{i(\mathbf{k} \cdot \mathbf{r} - \omega t)}$$

What is the speed of this wave?

Which way is it moving?

Why is there no δ ?

What is the frequency?

The angular frequency?

The wavelength?

The wave number?