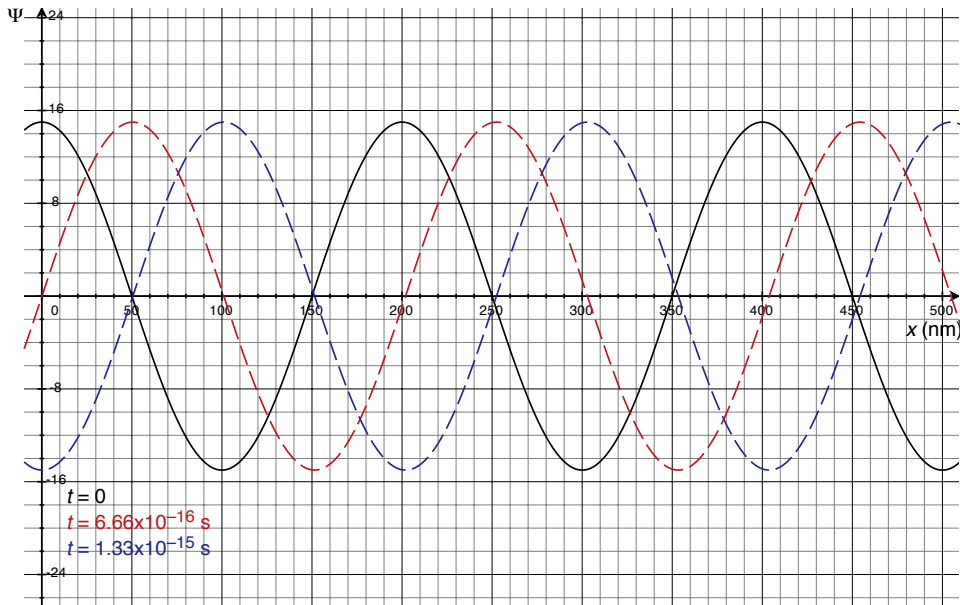


1. A wave

Figure 1 shows three snapshots of a harmonic wave.



- Write down expressions for this wave as a trig function and in exponential notation.
- Determine its wavelength λ , phase velocity, frequency ν and temporal period T .

2. Sound wave

A sound wave with a frequency $\nu = 1.65$ kHz travels at a speed of 340 m/s in dry air.

- Determine its angular frequency ω and wavelength λ .
- What is the phase difference in radians of two points on the wave separated by 100 mm?

3. Light wave

A light wave with a phase velocity of 3×10^8 m/s has a frequency $\nu = 5 \times 10^{14}$ Hz. What phase shift on this wave at a given point in space occurs in 100 ns? How many full wavelengths have passed by in this time interval?