

The traveling wave above has a wavelength of 2 meters and frequency of 400 Hz. Find the speed and period of the wave.

Solution.

$$\lambda = 2m, f = 400\text{Hz};$$

$$v-? \quad T-?$$

The wavelength is given by:

$$\lambda = \frac{v}{f};$$

λ – the wavelength;

v – the speed of the wave;

f – the frequency of the wave.

The speed of the wave is:

$$v = \lambda f.$$

$$v = 2 \cdot 400 = 800 \left(\frac{m}{s} \right).$$

The period is given by:

$$T = \frac{1}{f};$$

T – the period of the wave.

$$T = \frac{1}{400} = 0.0025(s).$$

Answer:

The speed of the wave is: $v = 800 \frac{m}{s}$.

The period of the wave is: $T = 0.0025s$.