

**Problem 1.10** An oscillator that generates a sinusoidal wave on a string completes 20 vibrations in 50 s. The wave peak is observed to travel a distance of 2.8 m along the string in 5 s. What is the wavelength?

**Solution:**

$$T = \frac{50}{20} = 2.5 \text{ s}, \quad u_p = \frac{2.8}{5} = 0.56 \text{ m/s},$$
$$\lambda = u_p T = 0.56 \times 2.5 = 1.4 \text{ m}.$$

---