

3. (a) The motion from maximum displacement to zero is one-fourth of a cycle so 0.170 s is one-fourth of a period. The period is $T = 4(0.170 \text{ s}) = 0.680 \text{ s}$.
- (b) The frequency is the reciprocal of the period:

$$f = \frac{1}{T} = \frac{1}{0.680 \text{ s}} = 1.47 \text{ Hz} .$$

- (c) A sinusoidal wave travels one wavelength in one period:

$$v = \frac{\lambda}{T} = \frac{1.40 \text{ m}}{0.680 \text{ s}} = 2.06 \text{ m/s} .$$