

Wave Basics

Period (T) $T = \frac{\text{time}}{\text{cycles}}$ units: s

frequency (f) $f = \frac{\text{cycles}}{\text{time}}$ units: s^{-1} or $1/s$ or Hz

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

Universal Wave Equation

$v = \lambda f$
m s⁻¹

MP/340

24 times in 36s

↑
counting
#

$f = \frac{\text{cycles}}{\text{time}}$

$f = \frac{24 \text{ cycles}}{36 \text{ s}}$

$f = 0.67 \text{ Hz}$
 s^{-1}

$T = \frac{\text{time}}{\text{cycles}}$

$T = \frac{36 \text{ s}}{24 \text{ cycles}}$

$T = 1.5 \text{ s}$

MP/348

$f = 2.8 \text{ Hz}$

$\lambda = 0.36 \text{ m}$

$v = ??$

$v = \lambda f$

$v = (0.36 \text{ m})(2.8 \text{ s}^{-1})$

$v = 1.0 \text{ m/s}$

MP/348

$\lambda = 2.8 \text{ m}$

$v = 3.80 \frac{\text{m}}{\text{s}}$

$f = ?$

$v = \lambda f$

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

$f = \frac{3.80 \text{ m/s}}{2.8 \text{ m}}$

$f = 1.4 \text{ Hz}$