

7 Simple harmonic motion, period, and frequency – Part 1 — Answers

Answers

Work through these after you have tried the questions yourself.

2.1 period $T = 2.0$ s; frequency $f = \frac{1}{T} = \frac{1}{2.0} = 0.50$ Hz.

2.2 it must point **back toward** the middle (restoring), and be **proportional** to the displacement from the middle.

2.3 $T = 2\pi\sqrt{\frac{m}{k}} = 2\pi\sqrt{\frac{0.40}{160}} = 2\pi\sqrt{0.0025} = 2\pi \times 0.05 = 0.31$ s.

2.4 the period increases (a larger mass oscillates more slowly).

2.5 the period stays the same; for SHM the period does not depend on amplitude, so a wider swing takes the same time.