

Solutions

Each answer shows the steps, then the **result**.

2.1

- $f = \frac{1}{T} = \frac{1}{2.0} = 0.50 \text{ Hz}$

2.2

- $T = 2\pi\sqrt{\frac{m}{k}} = 2\pi\sqrt{\frac{0.20}{80}} = 0.31 \text{ s}$

2.3

- it does not change — the period is independent of amplitude

3.1 C

3.2 B

- $T \propto \sqrt{m}$, so a factor of 2 in T needs a factor of 4 in m

3.3

(a)

- $T = 2\pi\sqrt{\frac{1.0}{9.8}} = 2.0 \text{ s}$

(b)

- $f = \frac{1}{2.0} = 0.50 \text{ Hz}$