

Solutions

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

2.1

- $f = 1/T = 1/0.5 = 2$ Hz

2.2

- The period increases

2.3

- $T \propto \sqrt{L}$, so $\sqrt{4} = 2$ times longer

2.4

- No

3.1 B

- the length and g

3.2 A

- $T \propto \sqrt{m}$, so $\sqrt{4} = 2$

3.3

(a)

- $T = 2\pi\sqrt{m/k} = 2\pi\sqrt{0.2/50} = 0.40$ s

(b)

- $f = 1/T = 2.5$ Hz

3.4

(a)

- $T = 2\pi\sqrt{1/9.8} \approx 2.0$ s

(b)

- No change (mass does not appear)