

Solutions

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

2.1

- $T = 2\pi\sqrt{L/g} = 2\pi\sqrt{0.25/9.8} \approx 1.0 \text{ s}$

2.2

- The distance from the pivot to the centre of mass

2.3

- No (mass cancels)

2.4

- About the pivot

3.1 B

- increasing the length increases the period

3.2 B

- the physical-pendulum formula

3.3

(a)

- $T = 2\pi\sqrt{\frac{\frac{1}{3}mL^2}{mg(L/2)}} = 2\pi\sqrt{\frac{2L}{3g}}$

(b)

- Slightly faster (shorter effective period)

3.4

(a)

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

(b)

- The period gets longer (smaller g)