

100. Eq. 16-28 gives $T = 2\pi\sqrt{L/g}$. Replacing L by $L/2$ gives the new period $T' = 2\pi\sqrt{L/2g}$. The ratio is

$$\frac{T'}{T} = \frac{2\pi\sqrt{L/2g}}{2\pi\sqrt{L/g}} = \frac{1}{\sqrt{2}} .$$

Therefore, we conclude that $T' = T/\sqrt{2}$.