

71. (a) When the speed is constant, we have $v = d/t$ where $v = 343$ m/s is assumed. Therefore, with $t = \frac{1}{2}(15\text{ s})$ (the time for sound to travel to the far wall) we obtain $d = (343)(15/2)$ which yields a distance of 2.6 km!
- (b) Just as the $\frac{1}{2}$ factor in part (a) was $1/(n+1)$ for $n = 1$ reflection, so also can we write

$$d = (343\text{ m/s}) \left(\frac{15\text{ s}}{n+1} \right) \implies n = \frac{(343)(15)}{d} - 1$$

for multiple reflections (with d in meters). For $d = 25.7$ m, we find $n = 199$.