

24. Since the power of the sound emitted from a section of the source with unit length is related to I by $P = IA = 2\pi r I(r)$, then we have $I(r) = P/(2\pi r) \propto r^{-1}$. And since $s_m \propto \sqrt{I}$ (by Eq. 18-27), then the fact that $I \propto r^{-1}$ in this situation leads to $s_m \propto r^{-1/2}$.