

Word Problems

The formula for loudness is given by $\text{dB} = 10 \log (I/I_0)$. dB is decibels, I_0 is sound that can be barely heard and I is how many times more intense than the initial sound being barely heard. If a cat's purr is 316 times as intense as a threshold sound, find the decibel rating.

$$\begin{aligned} \text{dB} &= 10 \log (I/I_0) \\ &= 10 \log (316 I_0 \div I_0) \\ &= 10 \log (316) \\ &\approx 24.9969 \end{aligned}$$