

The DeciBel Scale

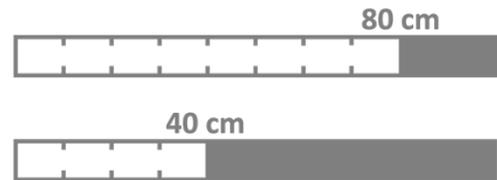
Video Notes

DeciBel Ratings

- Every sound is characterized by a deciBel rating that provides a measure of how intense the sound is.
- A more intense sound has a higher deciBel rating and is perceived by a person as being louder.
- To understand the concept of deciBels, you must know these two things.

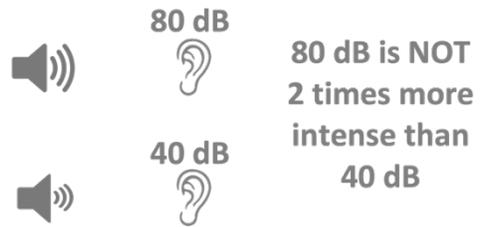
The DeciBel Scale is a Logarithmic Scale

- It is based on powers of 10
- It is much different than other measurement scales, like those of length:



80 cm is 2 times longer than 40 cm

- An 80 deciBel sound is NOT twice as intense as a 40 deciBel sound.
- Instead, it is 4 powers of 10 more intense – 10 000 X more intense – than a 40 deciBel sound.
- To understand why, you must also know that ...



The Meaning of Deci-

- The deci- of deciBel is a Greek prefix.
- It works much like the milli- of milliliter or the centi- of centimeter or the kilo- of kilogram.
- Centi- means $1/100^{\text{th}}$, which is why an 80 centi-meter length is equivalent to 0.80 meters.
- **Deci-** means $1/10^{\text{th}}$, so an 80 deciBel sound is an 8 bel sound.

40 deciBel → 4 Bel
70 deciBel → 7 Bel
100 deciBel → 10 Bel
120 deciBel → 12 Bel
95 deciBel → 9.5 Bel

