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# Questions for "Tonmeistertest"

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1. A typical beginners question is: "How many dBs are twice as loud." Explain this please to a student of the lower semesters. Because this question cannot be answered, we must issue the above clarification to several sub-questions.

a) How much is a doubling of sound pressure or voltage? (Field size)

b) How many dB level increase is this doubling of the sound pressure?

c) How much is a doubling of sound intensity or power? (Energy size)

d) How many dB level increase is this doubling of the intensity or of the power?

e) How much is a doubling of volume or loudness? (Psycho acoustic size)

f) How many dB level increase is this doubling of the volume or loudness?

Recognize that the question "How many dBs are twice as loud?" has no general answer.

Sound level dependence and the relevant factors in volume (loudness), sound pressure (voltage) and sound intensity (sound power): <http://www.sengpielaudio.com/calculator-levelchange.htm>

2. The aluminum ribbon microphone has a ribbon about 2 mm width is folded in zigzag, and has a resistance of  $R_i = 0.2$  ohms.

a) Why comes after the ribbon usually a transformer?

b) What ratio of the windings does the transformer at 200 ohm output impedance have?

c) The ribbon of the ribbon microphone delivers at  $R_p$  a very low voltage of  $U_p = 0.0158$  mV with a sound of  $p = 1$  Pa. How is the microphone's sensitivity at its output?

3. What polar pattern has a freely suspended boundary microphone (not on a flat surface) **a)** above the lower cutoff frequency and **b)** below the lower cutoff frequency?

a)

b)

<http://www.sengpielaudio.com/UntereGrenzfrequenzbeimGrenzflaechenmikrofon.pdf>