

Group Project: Applications of Logarithms

Each group will pick one of the following projects. Submit a short, one- or two-page, write-up on the topic that the rest of the class can use for their notes. Explain things clearly, so your classmates can understand your topic.

Decibel Level Project: Give a definition for decibels. Use the definition to compare the sound intensity level of normal conversation with the sound intensity level at a rock concert. At what level does hearing loss occur? Create two additional problems with solutions.

Richter Scale Project: Give a definition for Richter magnitude of an earthquake. Use the definition to compare the 1994 Northridge earthquake with the 1964 Anchorage earthquake. How large was the earthquake we had here in 2003. Create two additional problems with solutions.

pH Project: Give a definition for pH as used in chemistry. Use the definition to compare the pH of vinegar and the pH of ammonia. Give the pH of some common liquids that students are familiar with. Create two additional problems with solutions.

Fractal Dimension Project: Give a definition for fractal dimension. Use the definition to compare the fractal dimension of the Sierpinski triangle with the fractal dimension of the Sierpinski carpet. What is the fractal dimension of the Sierpinski pyramid? Create two additional problems with solutions. (You will need to include some graphics with this project. We need to see the Sierpinski triangle, carpet, and pyramid.)

MIDI Tuning Project: Show how logarithms are used in music to tune electronic instruments. Create two problems with solutions.