

A.5 Day 2 - Properties of Logarithms

Objectives: 1. Convert from exponential to log. form.

Exponential Form:

$$b^n = m$$

or

$$m = b^n$$

Logarithmic Form:

$$\log_b m = n$$



Read as "log base b of m equals n"

Feb 14-9:49 AM

Ex.1 Write each in **logarithmic** form: *|v| 1*

$$4^5 = 1024$$

$$\log_4 1024 = 5$$

$$\frac{1}{9} = 3^{-2}$$

$$\log_3 \frac{1}{9} = -2$$

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Ex.2 Write each in **exponential** form. *lvl 1*

$$\log_8 64 = 2$$

$$8^2 = 64$$

$$\log_{\frac{1}{2}} \left(\frac{1}{16} \right) = 4$$

$$\left(\frac{1}{2} \right)^4 = \frac{1}{16}$$

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LEVEL 4:

Write as a single logarithm and then convert into exponential form.

$$3 \log_6 3 + \log_6 8 = 3$$

$$\log_6 27 \oplus \log_6 8 = 3$$

$$\log_6 27 \cdot 8 = 3$$

$$\log_6 216 = 3$$

$$6^3 = 216$$

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Common Log (log base 10):

Its used in many scientific formulas and analysis.

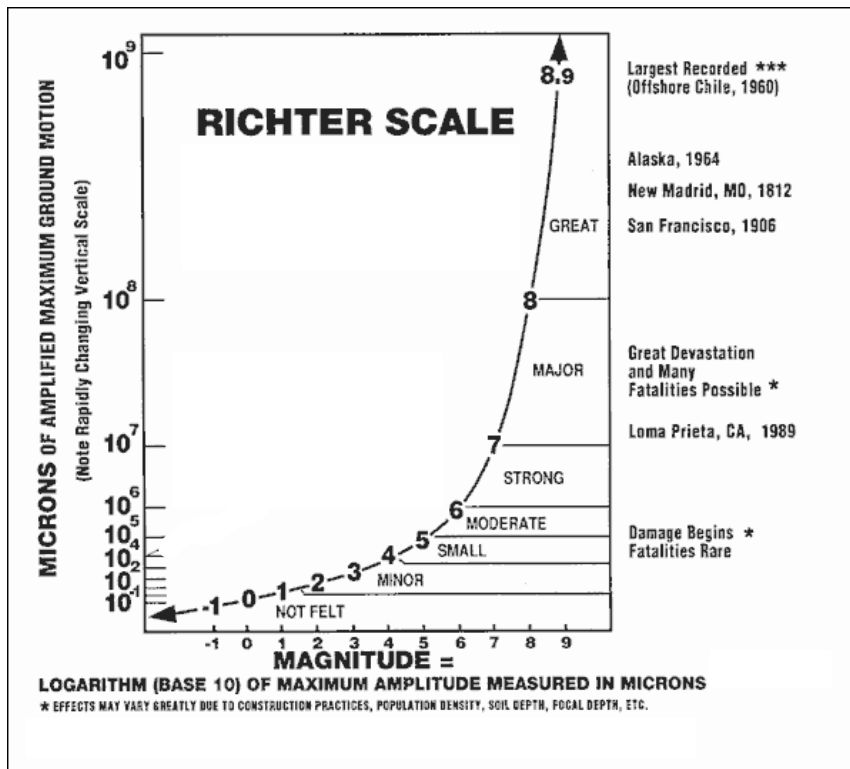
$$\log y = x$$



A log with seemingly no base is actually called a **common log**. It is a base of 10.

Many measurements of physical phenomena have such a wide range of values that the reported measurements are logarithms (exponents) of the values, not the values themselves. When you use the logarithm of a quantity instead of the quantity, you are using a **logarithmic scale**. The Richter scale is a logarithmic scale. It gives logarithmic measurements of earthquake magnitude.

Feb 14-10:16 AM



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