

EARTHQUAKE MAGNITUDE:

On the Richter scale, the magnitude R of an earthquake of intensity I is given by the formula:

$$R = \log_{10} \left(\frac{I}{I_0} \right)$$

where I_0 is a reference intensity used for comparisons.

Sometimes, I_0 can represent the intensity of an earthquake with a magnitude of 0.

The formula can also be re-arranged to find I , the intensity of an earthquake:

$$R = \log_{10} \left(\frac{I}{I_0} \right)$$

$$\frac{I}{I_0} = 10^R$$

$$I = I_0 \times 10^R$$

12.3 WORKED EXAMPLE

An earthquake measured 8.5 on the Richter scale. How many times more intense is this than the reference intensity?