

Percent Difference – Percent Error

Sometimes scientists will want to compare their results with those of others, or with a theoretically derived prediction. Each of these types of comparisons call for a different type of analysis, percent difference and percent error respectively.

Percent Difference: Applied when comparing two experimental quantities, E_1 and E_2 , neither of which can be considered the “correct” value. The percent difference is the absolute value of the difference over the mean times 100.

$$\% \text{ Difference} = \frac{|E_1 - E_2|}{\frac{1}{2}(E_1 + E_2)} \cdot 100$$

Percent Error: Applied when comparing an experimental quantity, E , with a theoretical quantity, T , which is considered the “correct” value. The percent error is the absolute value of the difference divided by the “correct” value times 100.

$$\% \text{ Error} = \left| \frac{T - E}{T} \right| \cdot 100$$