How do I calculate a percent change?

We use percentages a lot in our everyday life; for example, while calculating the tip at a restaurant, or while reading the nutrition provided in a label, or even while checking cell phone/laptop battery life we use percentages for effective calculation. Sometimes we want to know the proportional change of a number in two different periods of time, such as the increase of the price on a house from quarter to quarter, the expenses between two months, or the change of a salary between two years. A percent change allows us to standardize values and units, enabling a comparison between numbers. We present you with this guide to help you understand how to calculate a percent change.

**Formula to calculate a percentage change:**

The percentage change of X between two months (t and t-1) is calculated by:

$$\frac{(X_t - X_{t-1})}{X_{t-1}} \times 100$$

For example, the electricity bill of April ($78) and May ($92), where t= May and t-1=April.

($92 - $78) / $78 multiplied by 100, which results in 17.95. This means that the electricity bill increased 17.95% in May with respect to April.

**Rationale behind the formula:**

The net change is to $X_t - X_{t-1}$, further the original value of X was $X_{t-1}$ therefore divide the net change by the original value. Multiplying the result with 100 provides us the percentage.