

How to Easily Calculate Percentage Increases and Decreases in Excel

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The ability to quickly and accurately calculate a percentage increase or decrease is fundamental for financial modeling, sales analysis, and budgeting within Excel. Whether you are adjusting prices due to inflation, applying a discount, or projecting growth rates, understanding the underlying mathematical logic is crucial for successful implementation. In essence, calculating a percentage change involves manipulating the original value by a factor derived from the desired percentage change, expressed as a decimal.

When performing these calculations in a spreadsheet environment like Excel, the standard approach is to multiply the original value by a scaling factor. This scaling factor is calculated by taking 1 (representing 100% of the original value) and either adding or subtracting the percentage change. For instance, increasing a value by 20% means you want 100% (the original) plus 20% (the increase), resulting in 120% or 1.20 as the multiplier. Conversely, decreasing a value by 20% means you want 100% minus 20%, resulting in 80% or 0.80 as the multiplier.

The general formula structure ensures that the calculation is performed efficiently across large datasets. To determine the factor for a percentage increase, the mathematical operation is expressed as $1 + (\text{Percentage Increase} / 100)$. If the percentage is already entered in its decimal form (e.g., 0.25), you can simply use $1 + \text{Percentage}$. For a percentage decrease, the operation is $1 - (\text{Percentage Decrease} / 100)$. This simple yet powerful method allows users to apply consistent increases or discounts to numerous items, such as determining a final price inclusive of sales tax or calculating markdown prices during a promotional period.

Setting Up Data and Understanding Formula Components

Before diving into the formulas, it is essential to understand how to structure your data correctly in the Excel spreadsheet. Typically, you will have two main columns: one containing the original base values, and a second containing the percentage rate of change (increase or decrease). It is generally best practice to keep these elements separate, allowing for maximum flexibility if you need to change the rate later on.

In our examples, we will reference a setup where the original value resides in column A, and the percentage rate is located in column B. The percentage itself can be entered either as a standard number format (e.g., 25 for 25%) or, preferably, formatted as a percentage cell (e.g., 25%). Excel handles the conversion to a decimal internally if the cell is correctly formatted. If the percentage is just entered as a raw number like 25, you would need to divide it by 100 within the formula, though using cell formatting simplifies the syntax significantly.

Utilizing this structure, we can define the two fundamental formulas used to apply a percentage increase or percentage decrease to values in Excel:

Core Formulas for Percentage Adjustment in Excel

The standard methodology requires constructing a formula that first calculates the appropriate scaling factor and then multiplies that factor by the original number. This approach avoids the need for two separate steps (calculating the change amount, then adding/subtracting it).

The formula for applying a percentage increase is designed to calculate 100% of the original value plus the specified percentage amount. Assuming **A1** holds the base value and **B1** contains the percentage formatted as a percentage (e.g., 25%):

Method 1: Apply Percentage Increase Formula

=A1*(1+B1)

Conversely, when seeking to apply a decrease, the formula subtracts the percentage from the base value of 1 (100%), generating a multiplier less than one. This calculated multiplier is then applied to the original data point.

Method 2: Apply Percentage Decrease Formula

=A1*(1-B1)

In both functional examples, the **A1** cell always represents the initial **original value** that is being modified, while **B1** contains the **percentage rate** that dictates the magnitude of the increase or decrease. Mastering these two foundational formulas is the key to managing percentage adjustments across any scale of data within Excel. The following practical scenarios will illustrate the deployment and results of these structures.

Detailed Walkthrough: Applying a Percentage Increase (Example 1)

Consider a scenario where a business needs to increase the cost of various products by a standardized rate to account for rising operational expenses. We will demonstrate how to apply a consistent **25% increase** across multiple data points using the multiplicative method in Excel. Suppose we have the initial pricing list displayed below, organized in Column A, with the corresponding 25% increase rate applied consistently in Column B:

	A	B	C	D	E	F
1	Original Values					
2	10					
3	15					
4	18					
5	20					
6	25					
7	50					
8	100					
9	200					
10	400					
11	1000					
12	2000					
13						
14						
15						
16						
17						
18						
19						

To initiate the calculation, we must begin by entering the appropriate formula into the first result cell of the output column, which is typically Column C. For the first item, located in **A2**, and referencing the percentage rate in **B2**, the formula for a 25% increase must be constructed. Remember that 25% expressed as a decimal is 0.25, and adding it to 1 (the base) gives us 1.25, the multiplier needed.

We utilize the following precise syntax in **cell C2** to apply the 25% increase to the value currently held in **A2**:

=A2*(1+B2)

After entering this formula, the result will immediately appear in **C2**. The power of Excel lies in its ability to replicate this calculation efficiently. By dragging the fill handle (the small square at the bottom right corner of **C2**) down the column, the relative cell references (**A2** and **B2**) will automatically adjust to **A3/B3**, **A4/B4**, and so forth, applying the percentage increase consistently to every value in column A.

The subsequent screenshot visually demonstrates the application of this formula and the resulting calculated values in column C, confirming that the initial values have been successfully scaled upward:

C2 ✕ ✓ fx =A2*(1+B2)					
	A	B	C	D	E
1	Original Value	Increase by this %	Final Value		
2	10	25%	12.5		
3	15	25%	18.75		
4	18	25%	22.5		
5	20	25%	25		
6	25	25%	31.25		
7	50	25%	62.5		
8	100	25%	125		
9	200	25%	250		
10	400	25%	500		
11	1000	25%	1250		
12	2000	25%	2500		
13					
14					
15					
16					
17					
18					
19					

Interpreting the Results of a Percentage Increase

After successfully dragging the formula down, Column C now presents the resulting adjusted values. It is important to verify a few calculated results manually or logically to ensure the formula was applied correctly, especially if the source data or the percentage rate might change.

The calculation confirms that every original value in Column A has been successfully scaled up by exactly 25%. This factor (1.25) is consistently applied. For instance, if the original value were \$100, the 25% increase calculation would yield \$125. This method is mathematically sound and is the fastest way to handle bulk price adjustments or growth projections in Excel.

Analyzing the specific data points from our example demonstrates the precise output generated by the multiplicative factor method:

The original value of **10** is multiplied by 1.25, resulting in the increased value of **12.5**.

The original value of **15**, when increased by 25%, accurately results in **18.75**.

Applying the 25% percentage increase to **18** yields the adjusted figure of **22.5**.

Finally, the base value of **20** is increased by 25% to arrive at **25**.

This systematic approach ensures that the increase is proportional and correctly applied throughout the entire range of data, providing high integrity for financial reporting or data analysis tasks. We now turn our attention to the complementary process: applying a percentage decrease.

Detailed Walkthrough: Applying a Percentage Decrease (Example 2)

Applying a percentage decrease, often utilized for scenarios like sales discounts, tax deductions, or depreciation calculations, follows an analogous methodology to the increase calculation, but with a critical modification in the scaling factor. Instead of adding the percentage to 1, we subtract it. This creates a multiplier that is less than 1 (or 100%), thus reducing the original value proportionately.

For this example, assume the same initial list of values in **Column A**. However, this time, we aim to apply a standardized **10% decrease**. This 10% rate is stored in **Column B**. When 10% (or 0.10 as a decimal) is subtracted from 1, the resulting multiplier is 0.90, meaning the final value will be 90% of the original.

	A	B	C	D	E	F
1	Original Values					
2	10					
3	15					
4	18					
5	20					
6	25					
7	50					
8	100					
9	200					
10	400					
11	1000					
12	2000					
13						
14						
15						
16						
17						
18						
19						

To calculate the adjusted value for the first data point in **A2**, we input the percentage decrease formula into **cell C2**. This specific syntax ensures that the 10% rate in **B2** is subtracted from the base factor of 1 before multiplication occurs:

=A2*(1-B2)

As with the increase scenario, after entering the formula in **C2**, the user should employ the fill handle feature of Excel. This action drags the calculation down through the rest of the dataset, automatically adjusting the relative cell references (**A3**, **B3**, etc.) and populating the output column with the decreased values. This methodology is highly efficient for managing widespread price reductions or calculating the net value after a standard deduction.

The resulting calculation, shown in the screenshot below, provides a clear visual confirmation that the original values have been successfully reduced by 10% across the entire range:

	A	B	C	D	E
1	Original Value	Decrease by this %	Final Value		
2	10	10%	9		
3	15	10%	13.5		
4	18	10%	16.2		
5	20	10%	18		
6	25	10%	22.5		
7	50	10%	45		
8	100	10%	90		
9	200	10%	180		
10	400	10%	360		
11	1000	10%	900		
12	2000	10%	1800		
13					
14					
15					
16					
17					
18					
19					

Verification and Advanced Considerations for Percentage Changes

The results in Column C demonstrate the reliable application of the 10% decrease factor (0.90) to the source data in Column A. It is always beneficial to verify that the reduction is proportional to the original value. For instance, a larger original number will experience a larger absolute decrease, although the proportional percentage change remains constant across all data points.

Let us examine the specific output values generated by the decrease formula:

The starting value of **10**, multiplied by 0.90 (1 - 10%), results in the decreased value of **9**.

The base value of **15** is reduced by 10%, resulting in a new calculated figure of **13.5**.

Applying the 10% reduction to **18** yields the accurate decreased value of **16.2**.

Finally, the largest base value, **20**, sees a decrease of 2 (10% of 20), resulting in **18**.

This confirms the consistency of the calculation. When dealing with fixed rates that apply to many different values, using absolute references (e.g., locking the percentage cell using **\$B\$2**) is highly recommended. If the 10% rate was stored only in B2 and you dragged the formula down, future formulas would incorrectly reference B3, B4, etc., which might be empty or contain irrelevant data, leading to calculation errors. Using absolute references ensures that all calculations correctly point back to the single source percentage.

Furthermore, when dealing with financial data, ensure that the formatting of the result column (Column C in our examples) is set appropriately for currency or decimal precision. Although Excel correctly calculates the raw numbers, proper formatting enhances readability and accuracy for reports. By utilizing these simple, standardized formulas in Excel, users can master percentage adjustments quickly and reliably, regardless of the size or complexity of the dataset being analyzed.

And so on.