

What is the Difference Between AVERAGE and AVERAGEA Functions in Excel?

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The calculation of the mean, or arithmetic average, is one of the most fundamental operations performed within Excel. While many users are familiar with the standard AVERAGE function, Microsoft offers a second, often misunderstood alternative: the AVERAGEA function. Although both are designed to determine the central tendency of a given data set, they differ critically in how they handle non-numeric data types.

Understanding these differences is paramount for data integrity and accurate reporting, especially when working with complex spreadsheets that may contain mixed data formats, such as text labels, error values, or logical (Boolean) indicators. The core distinction lies in what each function recognizes as a valid input for inclusion in the calculation of the denominator (the count of items).

The Core Mechanism of the AVERAGE Function

The **AVERAGE** function is engineered strictly for numerical analysis. Its purpose is to calculate the arithmetic mean of a specified range of cells, considering only those cells that contain actual numerical values. This approach ensures that the resulting average is mathematically pure, reflecting only the quantitative data points.

The function deliberately ignores several types of data during its calculation. Specifically, it bypasses cells that contain text strings, logical values (**TRUE** or **FALSE**), and empty cells. By focusing solely on numerical entries, **AVERAGE** provides a robust measure for standard statistical calculations where non-numerical entries must be excluded from the count. This selectivity is generally preferred in financial modeling or scientific analysis where data integrity is based strictly on quantifiable metrics.

Introducing AVERAGEA: The All-Inclusive Calculation

In contrast to its counterpart, the **AVERAGEA** function adopts an "all-inclusive" philosophy toward data evaluation. The "A" suffix typically denotes "All" or "Accepts All," signifying its ability to process not just numbers, but virtually any value found within the cell range, including text and Boolean indicators. This function is particularly useful when the count of items in the denominator must reflect the total number of non-empty cells in the array, regardless of their data type.

The key difference lies in how **AVERAGEA** handles non-numeric values by coercing them into numerical equivalents before calculating the mean. This behavior dramatically alters both the sum (the numerator) and the count (the denominator) compared to the standard **AVERAGE** function. It is essential to understand the specific numerical mappings employed by **AVERAGEA**, as these dictate the final calculated result:

If a cell contains the logical value **TRUE**, **AVERAGEA** treats it as the numerical value **1** for the calculation.

If a cell contains the logical value **FALSE**, **AVERAGEA** treats it as the numerical value **0**.

If a cell contains a text string (including zero-length strings or text representations of numbers), **AVERAGEA** treats the value as **0**.

Detailed Comparison: How Data Types Affect AVERAGING Functions

The operational disparity between the two functions becomes most evident when analyzing heterogeneous data sets--that is, ranges containing a mix of numerical entries, text labels, and logical indicators. While both functions successfully process pure numerical data (returning the same result), their paths diverge immediately upon encountering any non-numeric value. This treatment of data types dictates the suitability of the function for specific analytical tasks.

Consider the impact on the denominator. The **AVERAGE** function uses a denominator equal only to the count of numbers present. Conversely, the **AVERAGEA** function uses a denominator equal to the count of all non-empty cells, effectively treating text and logical values as contributing elements to the overall population size. This distinction is critical: if you intend to find the average of only the numerical scores, **AVERAGE** is correct. If you wish to calculate an average based on the total number of records processed (where non-numerical records are assigned zero value), then **AVERAGEA** provides that specific metric.

Furthermore, error values (like **#DIV/0!** or **#VALUE!**) are ignored by both functions. However, empty cells are also ignored by both **AVERAGE** and **AVERAGEA**. The differentiation hinges entirely on the handling of textual content and **Boolean** results, which **AVERAGEA** incorporates by converting them to 0s and 1s, respectively, thus skewing the calculated average downward compared to **AVERAGE** when text or **FALSE** values are present.

We will now examine a practical example using a sample basketball dataset. This dataset will illustrate how each function handles common data inconsistencies, such as text entries in a numerical column and logical criteria, providing a clear demonstration of their operational differences.

	A	B	C	D	E	F
1	Team	Points	All-Star?			
2	Mavs	15	TRUE			
3	Spurs	16	FALSE			
4	Rockets	14	FALSE			
5	Kings	12	FALSE			
6	Warriors	fifteen	TRUE			
7	Nets	10	FALSE			
8	Lakers	29	TRUE			
9						
10						
11						
12						
13						
14						
15						
16						
17						

Example 1: AVERAGE vs. AVERAGEA Functions with Text Values

In this first scenario, we aim to calculate the average points scored by the players listed in the dataset, referencing the values found in the **Points** column (B2:B8). Note that the data for Player 5 is recorded as the text string "N/A" instead of a numerical value, which introduces a non-standard entry into the numeric array. We will apply both AVERAGE and **AVERAGEA** functions to cells **E2** and **F2**, respectively, to compare their resulting outputs.

The following formulas are entered to perform the respective calculations across the specified range:

E2: =AVERAGE(B2:B8)

F2: =AVERAGEA(B2:B8)

The subsequent screenshot illustrates the results generated by these functions in practice:

	A	B	C	D	E	F
1	Team	Points	All-Star?		AVERAGE Points	AVERAGEA Points
2	Mavs	15	TRUE		16	13.71428571
3	Spurs	16	FALSE			
4	Rockets	14	FALSE			
5	Kings	12	FALSE			
6	Warriors	fifteen	TRUE			
7	Nets	10	FALSE			
8	Lakers	29	TRUE			
9						
10						
11						
12						
13						
14						

The output demonstrates a significant difference, which is entirely attributable to the treatment of the text value "N/A" in cell B6. When using the **AVERAGE** function, the calculation strictly adheres to numerical data points. It identifies six numerical entries (15, 16, 14, 12, 10, 29) and completely disregards the text entry.

Calculation for **AVERAGE**: $(15 + 16 + 14 + 12 + 10 + 29) / 6 = 16$. The final result is **16**. The denominator only includes the count of numbers.

Conversely, the **AVERAGEA** function processes all non-empty cells. It recognizes the text value "N/A" in cell B6 as a valid data point for inclusion in the denominator count (totaling 7 cells), but assigns it a numerical value of 0 in the numerator sum, consistent with its handling of text:

Calculation for **AVERAGEA**: $(15 + 16 + 14 + 12 + 0 + 10 + 29) / 7 = 86 / 7 \approx 12.2857$. The final result is **12.2857**. The denominator includes the count of all non-empty cells, and the text entry is treated as 0.

This comparison clearly illustrates that if your intention is to calculate the average score based on the population of all players, including those with missing or non-numerical data points treated as zero, **AVERAGEA** delivers that outcome. If the goal is purely statistical analysis of existing numerical metrics, **AVERAGE** is the correct choice, as it filters out qualitative noise.

Example 2: AVERAGE vs. AVERAGEA Functions with Boolean Values

In this second practical demonstration, we shift our focus to the **All-Star** column (C2:C8), which

contains Boolean values (**TRUE** or **FALSE**). These logical values represent whether a player has been selected as an All-Star. We aim to determine the average of this logical column using both functions, entering them into cells **E2** and **F2** again.

The formulas remain structured identically, but reference the new data column:

E2: =AVERAGE(C2:C8)

F2: =AVERAGEA(C2:C8)

The following visual output captures the results of these formulas:

	A	B	C	D	E	F
1	Team	Points	All-Star?		AVERAGE All-Star	AVERAGEA All-Star
2	Mavs	15	TRUE		#DIV/0!	0.428571429
3	Spurs	16	FALSE			
4	Rockets	14	FALSE			
5	Kings	12	FALSE			
6	Warriors	fifteen	TRUE			
7	Nets	10	FALSE			
8	Lakers	29	TRUE			
9						
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17						

When the **AVERAGE** function attempts to process the range C2:C8, it finds no numerical values. Since it only calculates the mean of numbers, and it treats logical values as non-numerical inputs to be ignored, the function results in an attempt to divide by zero (0).

Consequently, the **AVERAGE** function returns the standard #DIV/0! error. This indicates that the function was unable to find any valid numerical entries to calculate the mean, reinforcing its strict reliance on quantitative data.

In sharp contrast, the **AVERAGEA** function successfully processes the column because it converts the logical inputs into numerical equivalents. It assigns 1 to **TRUE** values (Player 1, 5, 7) and 0 to **FALSE** values (Player 2, 3, 4, 6). The denominator is 7 (the total count of cells with values).

Calculation for **AVERAGEA**: $(1 + 0 + 0 + 0 + 1 + 0 + 1) / 7 = 3 / 7 \approx 0.42857$. The final result is **0.42857**.

This calculated result (0.42857) carries significant analytical meaning. When working with Boolean data, the average produced by **AVERAGEA** effectively calculates the proportion or percentage of **TRUE** values within the dataset. In this case, **42.857%** of the players in the sampled group are All-Stars, providing a quick and powerful statistical measure without requiring additional complex functions like COUNTIF or dividing by COUNTA.

Conclusion: When to Use AVERAGE vs. AVERAGEA

Choosing between the **AVERAGE** and **AVERAGEA** functions hinges entirely on the underlying intent of the analysis and the expected composition of the data set. The standard AVERAGE function is the default choice for pure statistical work involving only quantifiable figures. It provides the mathematically accurate arithmetic mean of numbers, ensuring that textual labels, logical flags, or placeholder text do not corrupt the numerical average. Use **AVERAGE** when you must exclude all non-numerical data points from both the summation and the count.

The **AVERAGEA** function, however, serves a specialized role, particularly useful for data tracking and overall population counting within Excel. It is invaluable when analyzing columns containing logical indicators (like status flags or binary outcomes), as it provides an immediate proportional measure of **TRUE** values. Furthermore, it is the appropriate function when you need to calculate an average where every non-empty record must contribute to the denominator, even if the non-numerical records are assigned a numerical zero value in the numerator.

In summary, always prioritize data type consistency. If your column should only contain numbers, use **AVERAGE** and address any data errors separately. If your data intentionally contains mixed types (numbers, text placeholders, and logical indicators) and you require an average based on the total count of occupied cells, **AVERAGEA** is the necessary, albeit potentially distorting, tool. Careful consideration of its underlying numeric coercion rules--especially the conversion of text to zero--is essential to prevent misleading analytical results.