

How to Split Whole Numbers and Decimals in Excel

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Working with numerical data often requires the ability to isolate specific components of a value, such as separating the whole number (or integer) from its associated decimal fraction. In Microsoft Excel, this task is efficiently handled by leveraging two powerful built-in functions: the INT function and the MOD function. The primary goal of this technique is to facilitate more granular data analysis and specialized calculations that require processing the integer and fractional parts independently.

The INT function serves to extract the integer component, providing the largest integer that is less than or equal to the specified number. Conversely, the MOD function is essential for isolating the decimal part by calculating the remainder after division. While these two functions are the cornerstone of separation, it is also worth noting that the ROUND function can be used if your objective is merely to manage or limit the precision of the decimal component rather than completely separate it. This article details the precise steps for using INT and MOD effectively.

Excel Mastery: Extracting Whole Numbers and Decimals

The Foundational Formulas for Extraction

To successfully split a number into its two constituent parts--the integer and the fraction--you must utilize specific Excel functions tailored for this purpose. These formulas rely on Excel's internal mathematical logic to precisely isolate the desired values without resorting to complex text manipulation. Understanding the exact syntax for both the INT function and the MOD function is the first step toward implementation. These techniques provide the foundation for robust data manipulation.

If your objective is solely to extract the whole number portion, often referred to as the integer, from a numerical value located in cell A2, the formula is straightforward, utilizing the dedicated Integer function provided by Excel. This function ensures that you capture the complete integer value, effectively disregarding any fractional component that follows the decimal point. This is the simplest way to isolate the whole number.

=INT(A2)

Conversely, isolating the fractional or decimal component requires using the Modulo function. This approach calculates the remainder of the number when divided by 1. Since the remainder of any number divided by 1 is mathematically the decimal part itself, this provides a clean and accurate extraction of the fractional value. Using the MOD function is the preferred method for this task.

=MOD(A2,1)

Practical Demonstration: Separating Components from Data

Consider a practical scenario where you have a dataset containing various numbers, some with fractions and some that are clean integers. The requirement is to organize this data by separating the original value into two distinct columns: one for the integer part and one for the decimal part. This separation can be crucial for advanced data transformation, filtering, or conditional formatting based on numerical components.

Suppose your data is structured as the following list of mixed numerical values within Column A of your Excel spreadsheet:

	A	B	C	D	E
1	Numbers				
2	12				
3	14.2				
4	15.00001				
5	19				
6	35				
7	-3				
8	6				
9	7				
10	17.234				
11	22.9				
12					
13					
14					
15					
16					

We aim to generate a new column (Column B) dedicated to the whole number extraction and another column (Column C) dedicated to the decimal extraction. This systematic approach ensures that the original data integrity remains intact while providing new derived fields for analysis, allowing for manipulation of the components without altering the source data.

Step-by-Step Implementation of the INT Function

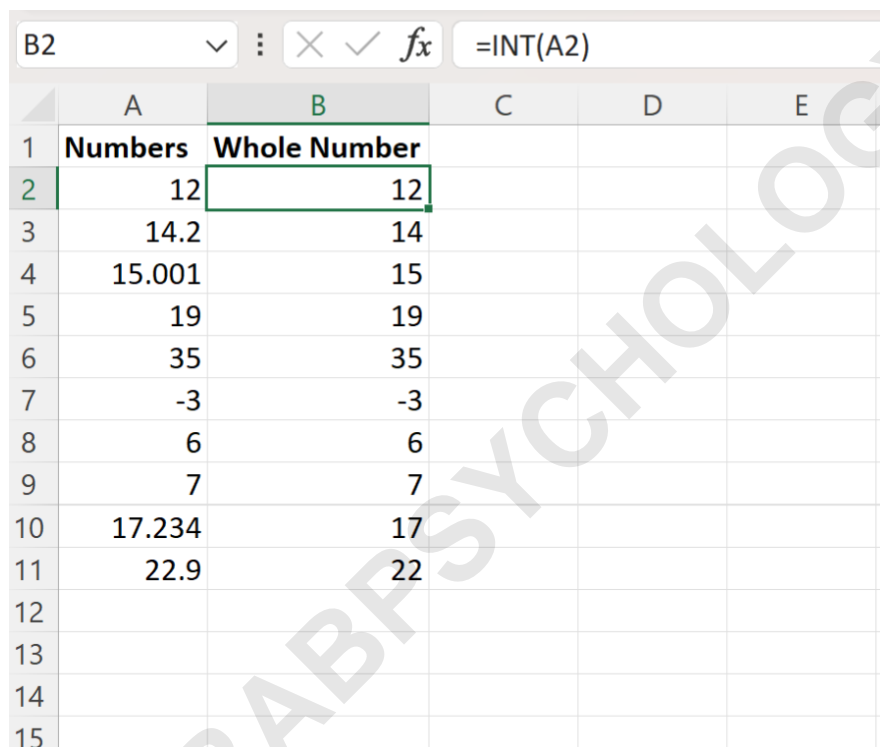
To begin the extraction of the whole number component, navigate to the first available cell in the column designated for integers, which in this case is cell **B2**. Here, we will input the INT function, referencing the original numerical value in cell A2. The function's behavior is consistent: it

truncates the number towards negative infinity, effectively returning the integer part.

Input the following formula into cell **B2**:

=INT(A2)

Once the formula is entered, you can efficiently apply it to the remaining cells in the dataset. By using the fill handle (dragging the formula down from the corner of cell B2), Excel automatically adjusts the cell reference (A2 becomes A3, A4, and so on) for the entire range of data. This action populates Column B exclusively with the integer part of each corresponding number in Column A, confirming the successful isolation of the whole number.



	A	B	C	D	E
1	Numbers	Whole Number			
2	12	12			
3	14.2	14			
4	15.001	15			
5	19	19			
6	35	35			
7	-3	-3			
8	6	6			
9	7	7			
10	17.234	17			
11	22.9	22			
12					
13					
14					
15					

Step-by-Step Implementation of the MOD Function

Next, we proceed to extract the fractional component. We will use the MOD function in cell **C2**, which is the starting point for the decimal column. The function requires two arguments: the number itself (A2) and the divisor (1). This divisor is key, as any number divided by 1 will yield the decimal remainder when utilizing the modulo operator.

Input the following formula into cell **C2**:

=MOD(A2, 1)

Similar to the previous step, drag the fill handle down from cell C2 to apply this formula across the entire dataset in Column C. This operation isolates and extracts only the remainder of the number when divided by 1, which is mathematically equivalent to the fractional part of the number. The output provides the precise decimal value.

	A	B	C	D	E
1	Numbers	Whole Number	Decimal		
2	12	12	0		
3	14.2	14	0.2		
4	15.001	15	0.001		
5	19	19	0		
6	35	35	0		
7	-3	-3	0		
8	6	6	0		
9	7	7	0		
10	17.234	17	0.234		
11	22.9	22	0.9		
12					
13					
14					
15					

Handling Integer Values and Edge Cases with MOD

It is crucial to observe how the MOD function responds when the original value in Column A is a perfect integer, meaning it contains no fractional component. In such instances, since the number is perfectly divisible by 1 (the divisor), the remainder calculated by the function is exactly zero. Consequently, the corresponding cell in Column C (the decimal column) will display a value of 0, correctly indicating the absence of a fractional part, confirming the formula's accuracy across different number types.

The core principle behind using the MOD function in Excel for decimal extraction rests upon its mathematical definition: returning the remainder after a division operation. When you set the divisor to 1, the result is guaranteed to be the fractional amount left over after the integer component has been processed. This elegant mathematical property makes the MOD function the most efficient tool for precise decimal isolation, regardless of whether the original number is positive or negative.

Alternative Methods and Advanced Considerations

While the INT and MOD combination provides the most direct and reliable method for absolute separation, other Excel functions offer utility depending on specific analytical needs. For example, if the requirement is not strict separation but rather control over the display precision of the decimal, functions such as the ROUND function, ROUNDUP, or ROUNDDOWN can be utilized to manage rounding behavior.

For users who prefer subtraction, an alternative, though mathematically identical, approach to finding the decimal part involves subtracting the integer part (obtained via INT) from the original number: `=A2 - INT(A2)`. This method achieves the exact same result as the MOD function but may be conceptually clearer for those unfamiliar with modulo arithmetic. However, the INT/MOD combination is often favored in complex array formulas or systems for its efficiency and clear, dedicated purpose. For detailed, authoritative references on these specific functions, consult the official Microsoft documentation.

The following tutorials explain how to perform other common operations in Excel: