Microsoft Excel

Module 26 - Use of Round, Round UP and Round DOWN Function in MS Excel

ROUND, ROUND UP and ROUND DOWN FUNCTION:

In Microsoft Excel, the **ROUND**, **ROUNDUP**, and **ROUNDDOWN** functions are used to modify the number of decimal places in a given number by rounding it to the nearest specified value. These functions are useful when you want to control how precise the numbers are displayed or used in calculations.

Here's a breakdown of each function:

1. ROUND Function

The **ROUND** function rounds a number to a specified number of digits. It rounds the number to the nearest value, with rounding up or down depending on the decimal part.

Formula:
=ROUND(number, num_digits)

- **number**: The number you want to round.
- **num_digits**: The number of digits you want to round the number to. This can be positive (for decimal places), zero (for whole numbers), or negative (to round to tens, hundreds, etc.).

Example:

- **Rounding to Two Decimal Places**

You can round a number to two decimal places using the **ROUND** function.

Example:

- Formula: =ROUND(5.678, 2)
- Result: **5.68**

Explanation: The number **5.678** is rounded to **5.68**, keeping two decimal places. Since the third decimal is **8**, the second decimal is rounded up.

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- **Rounding to One Decimal Place**

If you want to round a number to one decimal place:

Example:

- Formula: =ROUND(5.678, 1)
- Result: **5.7**

Explanation: The number **5.678** is rounded to **5.7**, as the second decimal is **7**, and it rounds down the **8** to **7**.

- **Rounding to Nearest Whole Number**

To round a number to the nearest whole number, use **0** for the number of decimal places.

Example:

- Formula: =ROUND(5.678, 0)
- Result: **6**

Explanation: The number **5.678** is rounded to the nearest whole number, which is **6**.

- **Rounding to Tens or Hundreds (Negative Digits)**

You can also round to the nearest ten, hundred, or larger number by using negative digits in the **ROUND** function.

Example 1: Round to the nearest ten

- Formula: =ROUND(1234, -1)
- Result: **1230**

Explanation: The number **1234** is rounded to the nearest ten, which results in **1230**.

Example 2: Round to the nearest hundred

- Formula: =ROUND(5678, -2)
- Result: **5700**

Explanation: The number **5678** is rounded to the nearest hundred, resulting in **5700**.

- **Rounding Negative Numbers**

You can also use the **ROUND** function to round negative numbers.

Example:

- Formula: =ROUND(-12.345, 1)
- Result: **-12.3**

Explanation: The number **-12.345** is rounded to **-12.3**, as the second decimal place is **4**, so it stays at **-12.3**.

- **Rounding a Large Number**

For larger numbers, you can specify how many decimal places you want.

Example:

- Formula: =ROUND(123456.789, 3)
- Result: **123456.789**

Explanation: The number **123456.789** is rounded to **123456.789**, as it is already rounded to three decimal places. If you used a smaller number of decimal places (e.g., **2**), it would round to **123456.79**.

2. ROUNDUP Function

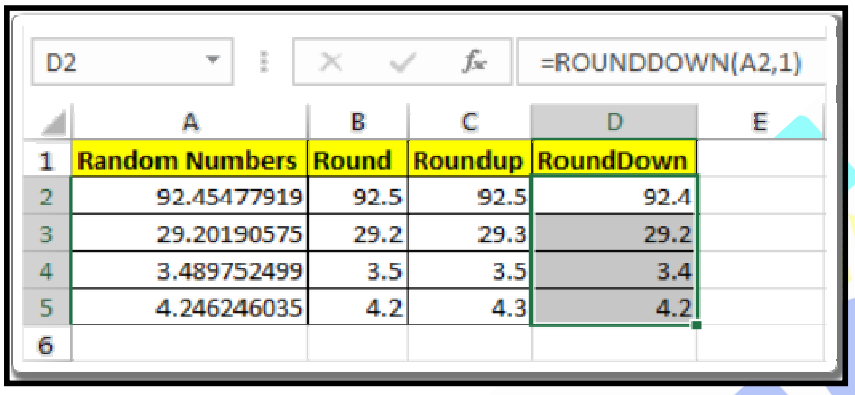
The **ROUNDUP** function rounds a number **up** away from zero, regardless of the decimal value. This ensures the number is always rounded up.

Syntax:
typescript
Copy
=ROUNDUP(number, num_digits)

- **number**: The number you want to round.
- **num_digits**: The number of digits you want to round the number to (same as ROUND).

Example:

- =ROUNDUP(5.123, 2) results in **5.13** (always rounds up).
- =ROUNDUP(5.123, 0) results in **6** (rounds up to the nearest whole number).
- =ROUNDUP(123.4, -1) results in **130** (rounds up to the nearest ten).



	A	B	C	D	E
1	Random Numbers	Round	Roundup	RoundDown	
2	92.45477919	92.5	92.5	92.4	
3	29.20190575	29.2	29.3	29.2	
4	3.489752499	3.5	3.5	3.4	
5	4.246246035	4.2	4.3	4.2	
6					

3. ROUNDDOWN Function

The **ROUNDDOWN** function rounds a number **down** toward zero, no matter what the decimal value is.

Syntax:
typescript
Copy
=ROUNDDOWN(number, num_digits)

- **number**: The number you want to round.
- **num_digits**: The number of digits to round the number to (same as ROUND).

Example:

- =ROUNDDOWN(5.987, 2) results in **5.98**.
- =ROUNDDOWN(5.987, 0) results in **5**.
- =ROUNDDOWN(123.9, -1) results in **120** (rounds down to the nearest ten).

When to Use Them:

- **ROUND** is used when you want to round to the nearest value based on standard rounding rules (0.5 rounds up, less than 0.5 rounds down).

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- **ROUNDUP** is useful when you need to always round up, for example in financial calculations where you need to ensure you don't undercharge or underpay.
- **ROUNDDOWN** is helpful when you need to always round down, for example when calculating something like estimated costs or quantities where you want to avoid overestimating.

ASSIGNMENT

Fill in the Rounded, Round Up, and Round Down Values

S. No.	Original Number	Round to (Place)	Rounded Number	Round Up	Round Down
1	7.248	Nearest whole number			
2	3.861	1 decimal place			
3	5.295	2 decimal places			
4	9.1	Nearest whole number			
5	2.978	2 decimal places			
6	6.04	1 decimal place			
7	4.446	Nearest whole number			
8	8.609	2 decimal places			
9	1.55	1 decimal place			
10	10.325	Nearest whole number			

Complete the above table: