How do I calculate Manhattan Distance in Excel?

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Manhattan Distance is a mathematical measurement used to calculate the distance between two points in a grid-like structure. In Excel, this can be done by using the ABS function to find the absolute difference between the coordinates of the two points, and then adding these values together to get the total distance. This method is commonly used in data analysis and can be applied to various scenarios such as determining the shortest route or measuring the similarity between two data sets. By following this simple calculation method, the Manhattan Distance can be easily calculated in Excel, providing a useful tool for analyzing and visualizing data.

Calculate Manhattan Distance in Excel

The Manhattan distance between two vectors, *A* and *B*, is calculated as:

$\Sigma|Ai - Bi|$

where *i* is the ith element in each vector.

This distance is used to measure the dissimilarity between two vectors and is commonly used in many machine learning algorithms.

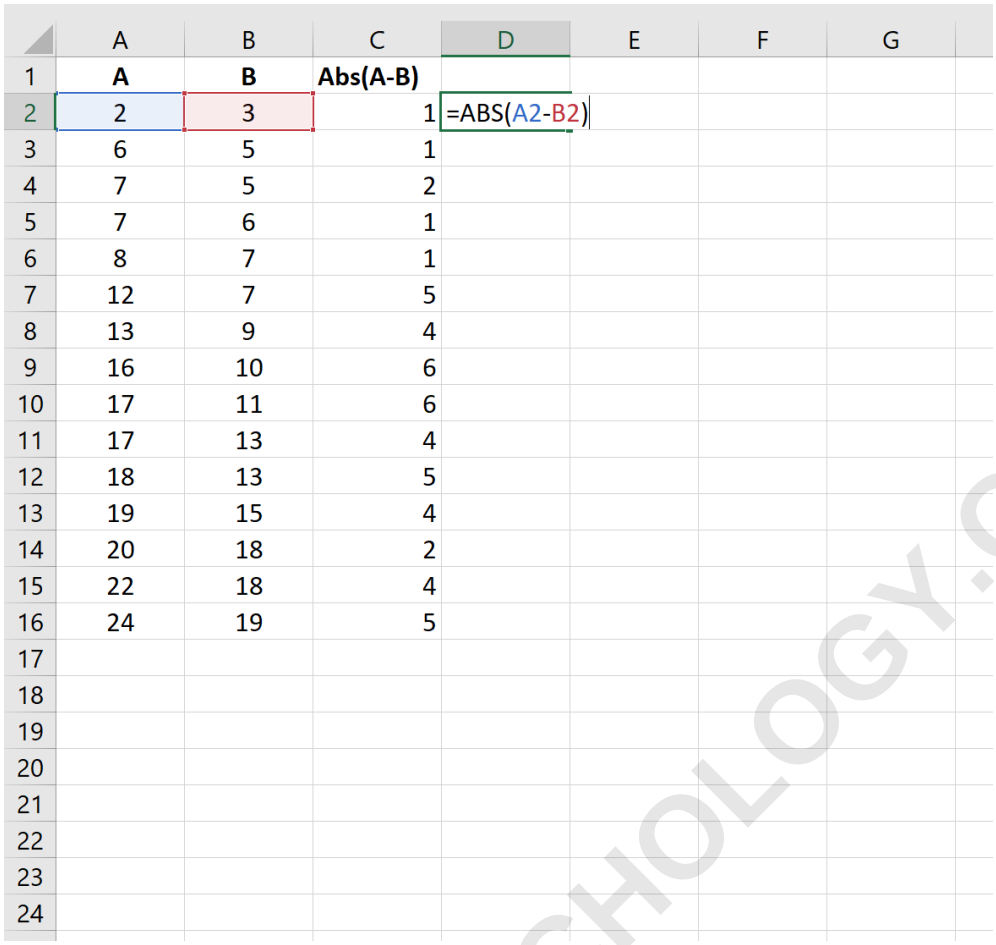
The following example shows how to calculate the Manhattan distance between two vectors in Excel.

Example: Calculating Manhattan Distance in Excel

Suppose we have the following two vectors, A and B, in Excel:

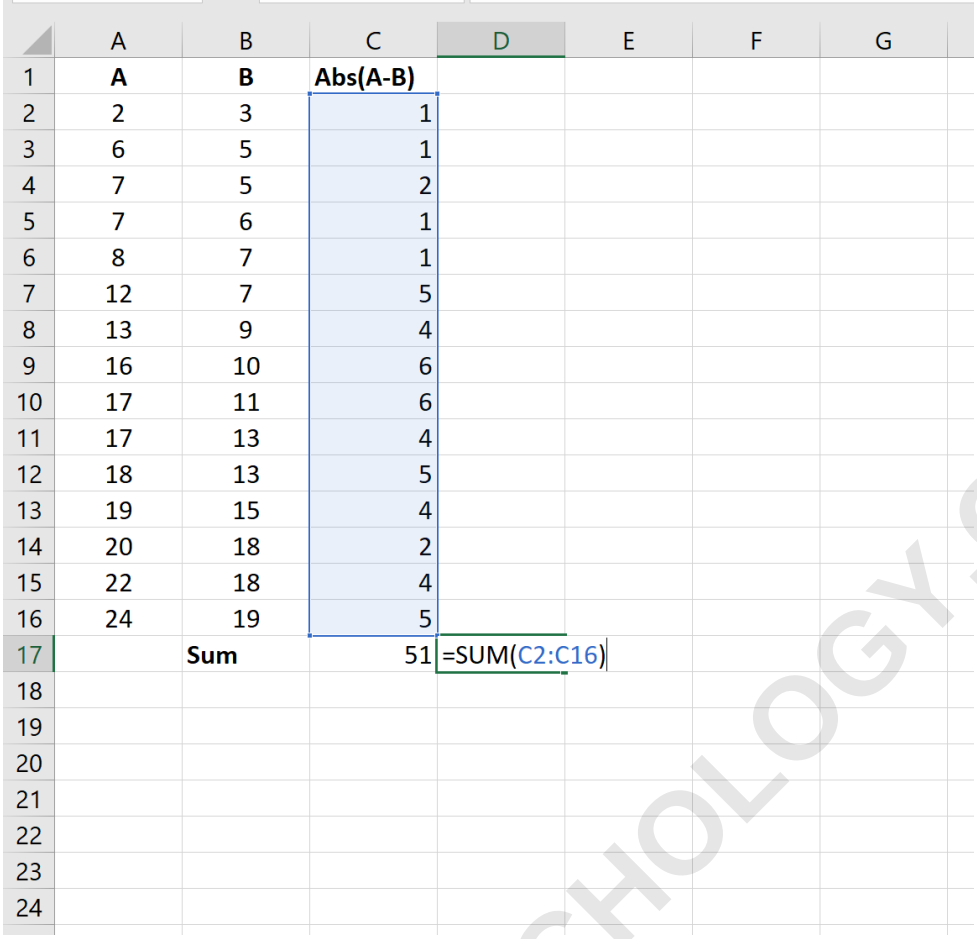
	A	B	C	D	E	F	G	H
1	**A**	**B**						
2	2	3						
3	6	5						
4	7	5						
5	7	6						
6	8	7						
7	12	7						
8	13	9						
9	16	10						
10	17	11						
11	17	13						
12	18	13						
13	19	15						
14	20	18						
15	22	18						
16	24	19						
17								
18								
19								
20								
21								
22								
23								
24								

To calculate the Manhattan distance between these two vectors, we need to first use the ABS() function to calculate the absolute difference between each corresponding element in the vectors:



	A	B	C	D	E	F	G
1	**A**	**B**	**Abs(A-B)**				
2	2	3	1	=ABS(A2-B2)			
3	6	5	1				
4	7	5	2				
5	7	6	1				
6	8	7	1				
7	12	7	5				
8	13	9	4				
9	16	10	6				
10	17	11	6				
11	17	13	4				
12	18	13	5				
13	19	15	4				
14	20	18	2				
15	22	18	4				
16	24	19	5				
17							
18							
19							
20							
21							
22							
23							
24							

Next, we need to use the SUM() function to sum each of the absolute differences:



	A	B	C	D	E	F	G
1	**A**	**B**	**Abs(A-B)**				
2	2	3	1				
3	6	5	1				
4	7	5	2				
5	7	6	1				
6	8	7	1				
7	12	7	5				
8	13	9	4				
9	16	10	6				
10	17	11	6				
11	17	13	4				
12	18	13	5				
13	19	15	4				
14	20	18	2				
15	22	18	4				
16	24	19	5				
17		**Sum**	51	=SUM(C2:C16)			
18							
19							
20							
21							
22							
23							
24							

The Manhattan distance between the two vectors turns out to be 51.

The following tutorials explain how to calculate other distances in Excel: