1. Aggregation Functions:

* SUM: Calculates the total of a numeric column.
  + Example: Total Sales = SUM(Sales[Amount])
  + Description: This measure computes the total sales amount from the 'Sales' table.
* AVERAGE: Determines the mean of a numeric column.
  + Example: Average Sales = AVERAGE(Sales[Amount])
  + Description: Calculates the average sales amount.
* MIN/MAX: Finds the smallest or largest value in a column.
  + Example: Min Sale Date = MIN(Sales[Date])
  + Description: Identifies the earliest sale date.
* COUNT/COUNTA: Counts the number of values or non-empty values in a column.
  + Example: Number of Sales = COUNT(Sales[Amount])
  + Description: Counts the total number of sales transactions.

2. Logical Functions:

* IF: Performs conditional tests and returns specified values based on the outcome.
  + Example: High Sales = IF(Sales[Amount] > 1000, "Yes", "No")
  + Description: Labels sales over $1000 as "Yes" and others as "No".
* AND/OR: Combines multiple logical conditions.
  + Example: High Sales in 2025 = IF(AND(Sales[Amount] > 1000, YEAR(Sales[Date]) = 2025), "Yes", "No")
  + Description: Identifies high sales made in the year 2025.
* SWITCH: Evaluates an expression against a list of values and returns corresponding results.
  + Example: Sales Category = SWITCH(TRUE(), Sales[Amount] > 1000, "High", Sales[Amount] > 500, "Medium", "Low")
  + Description: Categorizes sales amounts into "High," "Medium," or "Low".

3. Date and Time Functions:

* TODAY/NOW: Returns the current date or date and time.
  + Example: Days Since Sale = DATEDIFF(Sales[Date], TODAY(), DAY)
  + Description: Calculates the number of days since each sale occurred.
* YEAR/MONTH/DAY: Extracts respective components from a date.
  + Example: Sale Year = YEAR(Sales[Date])
  + Description: Extracts the year from each sale date.
* DATEDIFF: Calculates the difference between two dates.  
  + Example: Days Between Sales = DATEDIFF(Sales[Date], Sales[Next Sale Date], DAY)
  + Description: Computes the number of days between consecutive sales.
* EOMONTH: Returns the end of the month for a given date.
  + Example: End of Sale Month = EOMONTH(Sales[Date], 0)
  + Description: Finds the last day of the month for each sale date.

4. Filter Functions:

* FILTER: Returns a table that represents a subset of another table or expression.
  + Example: High Value Sales = FILTER(Sales, Sales[Amount] > 1000)
  + Description: Creates a table of sales transactions where the amount exceeds $1000.
* ALL: Removes filters from columns or tables.
  + Example: All Sales Amount = CALCULATE(SUM(Sales[Amount]), ALL(Sales))
  + Description: Calculates the total sales amount, ignoring any existing filters.
* RELATED: Returns a related value from another table.
  + Example: Customer Country = RELATED(Customers[Country])
  + Description: Retrieves the country associated with each sale from the 'Customers' table.
* CALCULATE: Modifies the context in which data is evaluated.
  + Example: Total Sales 2025 = CALCULATE(SUM(Sales[Amount]), YEAR(Sales[Date]) = 2025)
  + Description: Computes the total sales amount for the year 2025.

5. Text Functions:

* CONCATENATE: Joins two text strings into one.
  + Example: Full Product Name = CONCATENATE(Products[Brand], " ", Products[Name])
  + Description: Combines the brand and product name into a single string.
* LEFT/RIGHT/MID: These functions extract specific portions of a text string.
* LEFT: Retrieves a given number of characters from the start (left side) of a text string.
  + Example: Product Code Prefix = LEFT(Products[ProductCode], 3)

Description: Extracts the first three characters from the 'ProductCode' column in the 'Products' table, which can be useful for identifying product categories or families.

* RIGHT: Retrieves a given number of characters from the end (right side) of a text string.
  + Example: Product Code Suffix = RIGHT(Products[ProductCode], 2)

Description: Extracts the last two characters from the 'ProductCode' column, which might represent specific product variations or versions.

* MID: Extracts a substring from a text string, starting at any position.
  + Example: Product Code Segment = MID(Products[ProductCode], 4, 2)

Description: Starting from the fourth character, this extracts two characters from the 'ProductCode' column, allowing for the isolation of specific segments within the code.

6. Statistical Functions:

* MEDIAN: Calculates the median (middle value) of a set of numbers.
  + Example: Median Sales Amount = MEDIAN(Sales[Amount])

Description: Determines the median sales amount from the 'Sales' table.

* VAR/VARP: Computes the variance of a population or a sample.
  + Example: Sales Variance = VAR(Sales[Amount])

Description: Calculates the variance in sales amounts, providing insight into data dispersion.

* STDEV/STDEVP: Calculates the standard deviation for a sample or population.
  + Example: Sales Standard Deviation = STDEV(Sales[Amount])

Description: Measures the amount of variation or dispersion in sales amounts.

7. Information Functions:

* ISBLANK: Checks if a value is blank (i.e., null or empty).
  + Example: Is Sale Amount Blank = ISBLANK(Sales[Amount])

Description: Returns TRUE if the sales amount is blank; otherwise, FALSE.

* ISNUMBER: Determines if a value is numeric.
  + Example: Is Sale Amount Numeric = ISNUMBER(Sales[Amount])

Description: Checks whether the sales amount is a number.

* ISTEXT: Checks if a value is text.
  + Example: Is Customer Name Text = ISTEXT(Customers[Name])

Description: Verifies if the customer name is a text string.

8. Time Intelligence Functions:

* TOTALYTD/QTD/MTD: Calculates year-to-date, quarter-to-date, or month-to-date totals.
  + Example: Total Sales YTD = TOTALYTD(SUM(Sales[Amount]), Sales[Date])

Description: Computes the cumulative sales amount from the start of the year up to the current date.

* SAMEPERIODLASTYEAR: Returns a set of dates in the current selection from the previous year.
  + Example: Sales Same Period Last Year = CALCULATE(SUM(Sales[Amount]), SAMEPERIODLASTYEAR(Sales[Date]))

Description: Compares sales for the current period to the same period in the previous year.

* DATESINPERIOD: Returns a set of dates shifted by a specified interval.
  + Example:

Sales Last 30 Days = CALCULATE(SUM(Sales[Amount]), DATESINPERIOD(Sales[Date], LASTDATE(Sales[Date]), -30, DAY))

Description: Calculates total sales for the last 30 days from the most recent sale date.