Reference card

DAX components

Data Analysis Expressions

Data Analysis Expressions (**DAX**) in Power BI is a rich and versatile **formula language**, composed of a collection of **functions**, **operators**, and **constants** that can be used in formulas to perform advanced **calculations** and **data analysis**.

Data types

Data types define the **nature** and **characteristics** of **data**, dictating how data can be used and manipulated in calculations.

Whole number	**Integer** values without functions.
Decimal number	**Real numbers** with fractions.
Boolean	**True** or **false** values.
Text	**Character** data strings.
Currency	**Monetary** values.
Date	**Date** and **time**.
Blank	Represents an **absence** of data.

Operators

Operators in DAX are **symbols** or **keywords** that are used to create expressions that compare values, perform arithmetic calculations, or work with strings.

Arithmetic operators

Perform **mathematical calculations** and produce numerical results.

+	Used to **add** two **numbers**.
/	Used to **divide** one **number** by another.
-	Used to **subtract** one **number** from another.
^	Raises one number to the **power** of another.
*****	Used for **multiplying** two **numbers**.

Comparison operators

Used to **compare** values resulting in either **TRUE** or **FALSE**.

Checks if A = B `=`	Returns **TRUE** if value **A** in a column **equals** a specified value **B**.
Checks if A == B `==`	Returns **TRUE** if value **A** in a column and a specified **B** are **strictly equal**, i.e. **only TRUE** if the values are equal or if both values are **BLANK**.
Checks if A > B `>`	Returns **TRUE** where value **A** in a column is **greater than** a specified value **B**.
Checks if A ≥ B `>=`	Returns **TRUE** where value **A** in a column is **greater than or equal to** a specified value **B**.
Checks if A < B `<`	Returns **TRUE** where value **A** in a column is **less than** a specified value **B**.
Checks if A ≤ B `<=`	Returns **TRUE** where value **A** in a column is **less than or equal to** a specified value **B**.
Checks if A ≠ B `<>`	Returns **TRUE** where value **A** in a column is **not equal** to a specified value **B**.

String operator

The primary string operator in DAX is the **concatenation** operator (**&**), which **joins** two or more text strings into a single string.

Logical operators

Perform **boolean logic** operations, allowing for condition-based calculations.

&& (AND)	Returns **TRUE** if **both** conditions are TRUE; otherwise it returns **FALSE**.
IN	Checks if a value **exists** within a **specified list** or **table**, returning **TRUE** if a match is found or **FALSE** otherwise.
|| (OR)	Returns **TRUE** if **at least one** of the expressions is **TRUE**; it's only **FALSE** if both expressions are FALSE.
NOT	**Reverses** the **logical value** of an expression, returning **TRUE** if the expression is **FALSE**, and vice versa. It is a unary operator, i.e. it operates on only one operand.

Variables

Variables are used to **store** the result of an expression as a **named value**.

Defining a variable involves **assigning** an **expression** to a **name**, which can then be used throughout a DAX formula:

```
VAR VariableName = Expression.
RETURN Expression_including_variables
```

Functions

Functions in DAX are **predefined formulas** that perform calculations using specific values, called arguments, in a particular order to return a result.

Aggregation	Perform calculations on a set of values to produce a single, **summarising** value; often used for statistical analysis.
Counting	Determine the **number of** items within a specific dataset; useful for quantitative assessment.
Control flow	Direct the **execution flow** based on **conditions**, allowing for decision-making processes in data calculations.
Logical	**Evaluate expressions** and return boolean values; exclusively applicable in calculated columns for true/false decision-making.
Text	Handle and **manipulate strings** of text data, enabling operations like format alteration, data cleaning, or substring extraction.
Temporal	Work with **date** and **time** data, facilitating operations like date calculations, conversions, and period comparisons.
Information	Provide insights about the **nature** or **characteristics** of data, such as data type identification and error detection.
Filter	**Modify** the **context** or **subset** of data for specific analysis; essential for targeted data examination and result refinement.