DAX – Part 3 (Date & Time Intelligence)

1. TODAY()

- **Syntax:** TODAY()
- **Description:** Returns the **current date** (without time).
- **Result Format:** Date only (e.g., 2025-05-16)

Example:

IF([OrderDate] = TODAY(), "Today", "Past")

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2. NOW()

- **Syntax:** NOW()
- **Description:** Returns the **current date and time**.
- **Result Format:** Date + Time (e.g., 2025-05-16 10:32:45 AM)

Example:

IF([LoginTime] > NOW(), "Future Login", "Valid Login")

✅ **Key Differences:**

Function	Returns	Time Included?
TODAY()	Current Date	❌ No
NOW()	Current Date & Time	✅ Yes

1. DATEDIFF

- **Syntax:** DATEDIFF(start_date, end_date, interval)
- **Description:** Returns the **difference between two dates** in the specified unit.
- **Interval options:** SECOND, MINUTE, HOUR, DAY, MONTH, QUARTER, YEAR

Example:

```
DATEDIFF([OrderDate], [ShipDate], DAY)
```

---

2. YEAR

- **Syntax:** YEAR(date)
- **Description:** Extracts the **year** part from a date.

Example:

```
YEAR([OrderDate])   // e.g., returns 2025
```

---

3. MONTH

- **Syntax:** MONTH(date)
- **Description:** Extracts the **month number** (1 to 12) from a date.

Example:

```
MONTH([OrderDate])  // e.g., returns 5 for May
```

---

4. DAY

- **Syntax:** DAY(date)
- **Description:** Extracts the **day number** (1 to 31) from a date.

Example:

```
DAY([OrderDate])    // e.g., returns 16
```

✅ Common Use Case:

```
CustomerAge =
DATEDIFF([DOB], TODAY(), YEAR)
```

This calculates a customer's age in years based on date of birth.

1. SAMEPERIODLASTYEAR

- **Syntax:** SAMEPERIODLASTYEAR(dates)
- **Description:** Returns the **same period** (day, month, quarter) from the **previous year**.
- **Use With:** A continuous Date column (from a Date Table).

Example:

```
Sales LY =
CALCULATE([Total Sales], SAMEPERIODLASTYEAR('Date'[Date]))
```

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2. PARALLELPERIOD

- **Syntax:** PARALLELPERIOD(dates, number_of_intervals, interval)
- **Description:** Returns a **parallel period** that is a fixed number of intervals (months, quarters, years) before or after the given period.
- **Interval:** "month", "quarter", "year"

Example:

```
Sales Last 3 Months =
CALCULATE([Total Sales], PARALLELPERIOD('Date'[Date], -3, MONTH))
```

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3. DATEADD

- **Syntax:** DATEADD(dates, number_of_intervals, interval)
- **Description:** Shifts a set of dates forward/backward by a specific number of intervals.
- **More flexible** than PARALLELPERIOD (can go forward/back in **any** direction).

Example:

```
Sales Previous Month =
CALCULATE([Total Sales], DATEADD('Date'[Date], -1, MONTH))
```

✅ Summary Comparison:

Function	Shifts Date Range?	Maintains Period Length?	Typical Use
SAMEPERIODLASTYEAR	Yes (by 1 year)	✅ Yes	YoY comparison

PARALLELPERIOD	Yes (fixed steps)	✅ Yes	Custom time shifts
DATEADD	Yes (flexible)	✅ Yes	Rolling comparisons

1. TOTALYTD

Syntax:

TOTALYTD(<expression>, <dates>, [<filter>], [<year_end_date>])

- **Description:** Calculates the **year-to-date total** of an expression.

Example:

Sales YTD =
TOTALYTD([Total Sales], 'Date'[Date])

---

2. TOTALQTD

Syntax:

TOTALQTD(<expression>, <dates>, [<filter>])

- **Description:** Calculates the **quarter-to-date total** of an expression.

Example:

Sales QTD =
TOTALQTD([Total Sales], 'Date'[Date])

---

3. TOTALMTD

Syntax:

TOTALMTD(<expression>, <dates>, [<filter>])

- **Description:** Calculates the **month-to-date total** of an expression.

Example:

Sales MTD =
TOTALMTD([Total Sales], 'Date'[Date])

✅ **Key Points:**

- Always use a **proper Date Table** connected to your fact table.
- These functions are used inside **measures** to support dynamic visuals.
- Optional filters can be added to restrict context (e.g., by region or product).