

## 1. What does DAX stand for?

DAX stands for **Data Analysis Expressions**. It is a formula language used in Power BI, Excel Power Pivot, and SSAS Tabular to perform calculations and data analysis on data models.

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## 2. Write a DAX formula to sum the Sales column.

DAX

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```
Total Sales = SUM(Sales[Sales])
```

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## 3. What is the difference between a calculated column and a measure?

- **Calculated Column:** Calculated at the row level and stored in the model. It adds new data (columns) to the table.
  - **Measure:** Calculated at query time using aggregations. It doesn't store data, only calculates it on demand (e.g., in visuals).
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## 4. Use the DIVIDE function to calculate Profit Margin (Profit/Sales).

DAX

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```
Profit Margin = DIVIDE(Sales[Profit], Sales[Sales])
```

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## 5. What does COUNTROWS() do in DAX?

COUNTROWS() counts the number of rows in a table or table expression.

Example:

DAX

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```
Number of Orders = COUNTROWS(Orders)
```

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## 6. Create a measure: Total Profit that subtracts total cost from total sales

DAX

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Total Profit = SUM(Sales[Sales]) - SUM(Sales[Cost])

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**7. Write a measure to calculate Average Sales per Product.**

DAX

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Average Sales per Product = AVERAGEX(VALUES(Sales[Product]), SUM(Sales[Sales]))

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**8. Use IF() to tag products as "High Profit" if Profit > 1000.**

(As a calculated column or measure):

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Profit Tag = IF(Sales[Profit] > 1000, "High Profit", "Normal")

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**9. What is a circular dependency error in a calculated column?**

It occurs when a calculated column depends on itself either directly or indirectly. This creates an infinite loop and Power BI cannot evaluate it.

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**10. Explain row context vs. filter context.**

- **Row Context:** Exists in calculated columns or iterators. It means the formula is evaluated **for each row** in a table.
  - **Filter Context:** Exists in measures or visuals. It's the **filters applied** to evaluate the formula (e.g., slicers, page filters, row filters in visuals).
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**11. Write a measure to calculate YTD Sales using TOTALYTD().**

DAX

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YTD Sales = TOTALYTD(SUM(Sales[Sales]), Sales[Date])

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**12. Create a dynamic measure that switches between Sales, Profit, and Margin.**

(Using a disconnected table and SELECTEDVALUE)

DAX

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Dynamic Metric =

SWITCH(

    SELECTEDVALUE(Metrics[Metric]),

    "Sales", SUM(Sales[Sales]),

    "Profit", SUM(Sales[Profit]),

    "Margin", DIVIDE(SUM(Sales[Profit]), SUM(Sales[Sales]))

)

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### 13. Optimize a slow DAX measure using variables (VAR).

Before:

DAX

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Slow Measure = SUM(Sales[Sales]) + SUM(Sales[Profit]) - SUM(Sales[Cost])

Optimized with VAR:

DAX

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Optimized Measure =

VAR TotalSales = SUM(Sales[Sales])

VAR TotalProfit = SUM(Sales[Profit])

VAR TotalCost = SUM(Sales[Cost])

RETURN

TotalSales + TotalProfit - TotalCost

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### 14. Use CALCULATE() to override a filter

DAX

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Sales for 2024 = CALCULATE(SUM(Sales[Sales]), Sales[Year] = 2024)

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**15. Write a measure that returns the highest sales amount**

DAX

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Max Sales = MAX(Sales[Sales])