✅ **1. What does DAX stand for?**

Answer: DAX stands for **Data Analysis Expressions**.

✅ **2. Write a DAX formula to sum the Sales column.**

DAX

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Total Sales = SUM(DAX_Practice_Data[Sales])

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

- **Calculated Column**: Row-by-row calculations stored in the data model.
- **Measure**: Calculations evaluated based on context, not stored in the table.

✅ **4. Use the DIVIDE function to calculate Profit Margin (Profit/Sales).**

DAX

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Profit Margin = DIVIDE(DAX_Practice_Data[Sales] - DAX_Practice_Data[Cost], DAX_Practice_Data[Sales])

✅ **5. What does COUNTROWS() do in DAX?**

Answer: It counts the number of rows in a table.

✅ **6. Create a measure: Total Profit (Sales - Cost)**

DAX

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

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

DAX

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Average Sales per Product = AVERAGE(DAX_Practice_Data[Sales])

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

As a **calculated column**:

DAX

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Profit Tag = IF(DAX_Practice_Data[Sales] - DAX_Practice_Data[Cost] > 1000, "High Profit", "Low Profit")

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

Answer: It occurs when a column depends on itself either directly or indirectly, creating an infinite loop.

✅ 10. Explain row context vs. filter context

- **Row context**: Operates on each row individually (used in calculated columns).
- **Filter context**: Created by visuals, slicers, or CALCULATE(), determines what data is included in a measure.

✅ 11. Write a measure to calculate YTD Sales using TOTALYTD()

DAX

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

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

(Requires disconnected table named Metric_Selector with values: Sales, Profit, Margin)

DAX

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```
Selected Metric =
SWITCH(
    SELECTEDVALUE(Metric_Selector[Metric]),
    "Sales", SUM(DAX_Practice_Data[Sales]),
    "Profit", SUM(DAX_Practice_Data[Sales]) - SUM(DAX_Practice_Data[Cost]),
    "Margin", DIVIDE(SUM(DAX_Practice_Data[Sales]) - SUM(DAX_Practice_Data[Cost]), SUM(DAX_Practice_Data[Sales]))
)
```

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

Slow version:

DAX

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

Optimized version:

DAX

КопироватьРедактировать

```
Total Profit Optimized =
VAR SalesTotal = SUM(DAX_Practice_Data[Sales])
VAR CostTotal = SUM(DAX_Practice_Data[Cost])
```

RETURN SalesTotal - CostTotal

✅ 14. Use CALCULATE() to override a filter

Example: Calculate Sales ignoring filter on ProductID

DAX

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```
Sales All Products = CALCULATE(SUM(DAX_Practice_Data[Sales]),
ALL(DAX_Practice_Data[ProductID]))
```

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

DAX

КопироватьРедактировать

```
Max Sales = MAX(DAX_Practice_Data[Sales])
```

✅ 1. What is row context? Give an example in a calculated column.

Answer: Row context refers to the current row being evaluated in a calculated column.
Example:

DAX

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```
TotalPrice = Sales[Quantity] * Sales[UnitPrice]
```

✅ 2. Write a measure that finds total sales

DAX

КопироватьРедактировать

```
Total Sales = SUMX(Sales, Sales[Quantity] * Sales[UnitPrice])
```

✅ **3. Use RELATED to fetch the Name from the Customers table into the Sales table**

(Assuming Customers[CustomerID] is related to Sales[CustomerID])

DAX

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Customer Name = RELATED(Customers[Name])

✅ **4. What does this return?**

DAX

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CALCULATE(SUM(Sales[Quantity]), Sales[Category] = "Electronics")

Answer: Returns the **total quantity** of products where category is "Electronics".

✅ **5. Explain the difference between VAR and RETURN in DAX**

Answer:

- VAR stores intermediate values.
- RETURN defines the final expression using those variables.

✅ **6. Create a calculated column in Sales called TotalPrice using row context**

DAX

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TotalPrice = Sales[Quantity] * Sales[UnitPrice]

✅ **7. Write a measure: Electronics Sales using CALCULATE**

DAX

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Electronics Sales =

```
CALCULATE(
    SUMX(Sales, Sales[Quantity] * Sales[UnitPrice]),
    Sales[Category] = "Electronics"
)
```

✅ 8. Use ALL(Sales[Category]) to ignore category filters

DAX

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```
Total Sales All Categories =
CALCULATE(
    SUMX(Sales, Sales[Quantity] * Sales[UnitPrice]),
    ALL(Sales[Category])
)
```

✅ 9. Fix: RELATED(Customers[Region]) returns blank

Solution: Ensure Sales[CustomerID] and Customers[CustomerID] are related properly, and that the CustomerID exists in both tables.

✅ 10. Why does CALCULATE override filters?

Answer: Because CALCULATE modifies the context by applying or removing filters explicitly.

✅ 11. Write a measure to return average unit price of products

DAX

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```
Average UnitPrice = AVERAGE(Sales[UnitPrice])
```

✅ 12. Use VAR to store high-quantity sales (>2), then count rows

DAX

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```
High Quantity Sales Count =
VAR HighSales = FILTER(Sales, Sales[Quantity] > 2)
RETURN COUNTROWS(HighSales)
```

✅ 13. Write a measure % of Category Sales

DAX

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```
% of Category Sales =
DIVIDE(
    SUMX(Sales, Sales[Quantity] * Sales[UnitPrice]),
    CALCULATE(
        SUMX(Sales, Sales[Quantity] * Sales[UnitPrice]),
        ALLEXCEPT(Sales, Sales[Category])
    )
)
```

✅ 14. Simulate “Remove Filters” button using ALL in a measure

DAX

КопироватьРедактировать

```
Remove Filter Sales =
CALCULATE(
    SUMX(Sales, Sales[Quantity] * Sales[UnitPrice]),
    ALL(Sales)
```

)

✅ 15. Troubleshoot: CALCULATE measure ignores slicer – what's the cause?

Answer: Likely due to use of ALL() or REMOVEFILTERS() inside the CALCULATE, which disables slicer filtering.