1. What does DAX stand for?

- **DAX** = *Data Analysis Expressions*.

---

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

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

---

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

- **Calculated Column**: Computed row by row, stored in the data model, increases size.
- **Measure**: Calculated on the fly, uses filter context, does not increase model size.

---

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

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

---

5. What does COUNTROWS() do in DAX?

- It counts the number of rows in a table or in a filtered table.

Example:

```
Row Count = COUNTROWS(DAX_Practice_Data)
```

---

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

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

---

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

```
Avg Sales per Product = AVERAGEX(VALUES(DAX_Practice_Data[Product]),
SUM(DAX_Practice_Data[Sales]))
```

---

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

```
Profit Tag = IF(DAX_Practice_Data[Profit] > 1000, "High Profit", "Low
Profit")
```

(This would usually be a calculated column, not a measure.)

---

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

- Happens when a formula refers to itself directly or indirectly, creating an infinite loop.

---

10. Explain row context vs. filter context.

- **Row Context**: Calculation happens row by row in a table (calculated columns).
- **Filter Context**: Calculation happens after applying filters/slicers (measures).

---

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

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

---

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

```
Selected Measure =
SWITCH(
    SELECTEDVALUE(DAX_Practice_Data[MeasureChoice]),
    "Sales", SUM(DAX_Practice_Data[Sales]),
    "Profit", SUM(DAX_Practice_Data[Profit]),
    "Margin", DIVIDE(SUM(DAX_Practice_Data[Profit]),
SUM(DAX_Practice_Data[Sales]))
)
```

---

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

```
Optimized Profit Margin =
VAR TotalSales = SUM(DAX_Practice_Data[Sales])
VAR TotalProfit = SUM(DAX_Practice_Data[Profit])
RETURN DIVIDE(TotalProfit, TotalSales)
```

---

14. Use CALCULATE() to override a filter.
Example: Sales ignoring Region filter:

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

---

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

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