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

- **Row context** = DAX evaluates formulas **row by row** in a table.
- Example (Calculated Column in `Sales` table):

```
Line Profit = Sales[Quantity] * Sales[UnitPrice] - Sales[Cost]
```

👉 Each row calculates its own profit, independent of slicers/filters.

---

2. Write a measure that finds total sales

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

👉 A measure is dynamic, changes with filters (region, date, etc.).

---

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

```
Customer Name = RELATED ( Customers[Name] )
```

👉 Works only if there's a **relationship** between `Sales` and `Customers` (e.g., `Sales[CustomerID] → Customers[CustomerID]`).

---

4. What does this return?

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

👉 It returns **the total quantity of sales filtered only to rows where Category = "Electronics"**.

- If put in a Card visual → shows **total Electronics quantity**.
- If put in a Table by Region → shows Electronics quantity per region.

---

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

- **VAR** = stores an intermediate result (number, text, or table).
- **RETURN** = tells DAX what to output using those variables.

Example:

```
High Sales =
VAR Total = SUM ( Sales[SalesAmount] )
RETURN
IF ( Total > 1000, "High", "Low" )
```

---

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

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

👉 Each row is evaluated separately (row context).

---

7. Write a measure Electronics Sales using CALCULATE

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

---

8. Use ALL(Sales[Category]) in a measure

```
Total Sales (Ignore Category) =
CALCULATE (
    SUM ( Sales[SalesAmount] ),
    ALL ( Sales[Category] )
)
```

👉 Removes the slicer/filter on `Category`, shows the grand total instead.

---

9. Fix error: RELATED(Customers[Region]) returns blanks

Likely cause:

- No relationship exists between `Sales` and `Customers`, or wrong join column.

☑ Fix: Create relationship `Sales[CustomerID] → Customers[CustomerID]`.

---

10. Why does CALCULATE override existing filters?

- Because `CALCULATE` **changes filter context** before evaluating the expression.
- Example: Even if the page has Category = "Clothing", this measure will force Category = "Electronics".

---

11. Measure: Average Unit Price

```
Avg Unit Price = AVERAGE ( Sales[UnitPrice] )
```

---

12. Use VAR to store a temporary table of high-quantity sales

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

👉 Counts number of sales rows with quantity > 2.

---

13. % of Category Sales (contribution to category total)

```
% of Category Sales =
DIVIDE (
    SUM ( Sales[SalesAmount] ),
    CALCULATE ( SUM ( Sales[SalesAmount] ), ALLEXCEPT ( Sales,
Sales[Category] ) )
)
```

👉 Shows each row/product's contribution to its category's total.

---

14. Simulate a "remove filters" button using ALL

```
Sales (All Categories) =
CALCULATE ( SUM ( Sales[SalesAmount] ), ALL ( Sales[Category] ) )
```

👉 Add this to a Card visual → always shows total sales regardless of slicer.

---

15. Troubleshoot: A CALCULATE measure ignores a slicer. What's the likely cause?

- Possible reasons:
    - The measure explicitly uses `ALL()` or `REMOVEFILTERS()` → slicer is overridden.
    - The slicer is on a column **not related** to the Sales table.
    - Wrong data model relationships (inactive or missing).