1. What is a primary key in a table?

A Primary Key is a column (or a combination of columns) in a table that uniquely identifies each row.

2. Name the two types of table relationships in Power BI.

One to Many: One row in the first table matches many rows in the second table.

Many to Many: Rows in both tables can match multiple rows in the other.

Used when there is no unique key in either table.

Requires composite modeling and often uses a bridge table.

3. How do you create a relationship between two tables in Power BI?

Using Model View (drag-and-drop)

Open your Power BI file.

Go to the Model view (icon that looks like a table with relationships).

Click and drag a column (e.g., CustomerID from Orders)
onto the matching column in the related table (e.g., CustomerID in Customers).

A relationship line appears between the two tables.

4. What is a "star schema"?

   A Star Schema is a data modeling design where you organize your data into:

   One central "Fact Table" (contains numeric values like sales, quantities, etc.)

   Multiple "Dimension Tables" (contains descriptive info like customer names, product details, dates, etc.)

5. Which table is typically the fact table in a sales dataset?

   Sales table

6. Link Sales.csv to Customers.csv using CustomerID (one-to-many).
7. Why is ProductID in Sales.csv a foreign key?

   Because it links to the unique PRODUCTID in the Product table and helps to join data.

8. Fix a relationship error where ProductID has mismatched data types.
9. Explain why a star schema improves performance.

Star schema improves performance becaise it gives the benefit of fewer joins, better compression and optimized DAX.

10. Add a new column TotalSales in Sales (Quantity * Price from Products).
11. Optimize a model with circular relationships—how would you resolve it?

A circular relationship (also called a relationship loop) happens when three or more tables are connected in such a way that Power BI can't determine a clear path for filtering. This causes errors or ambiguous results in visuals and DAX calculations.

12. Create a role-playing dimension for OrderDate and ShipDate.
13. Handle a many-to-many relationship between Customers and Products.
14. Use bidirectional filtering sparingly—when is it appropriate?
15. Write DAX to enforce referential integrity if a CustomerID is deleted.