

Data Modeling Basics - Theory Answers (Q1-5, 7-9, 11, 13-15)

1. What is a primary key in a table?

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

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

The two types are: One-to-Many and Many-to-One. Power BI usually uses One-to-Many.

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

Go to 'Model' view drag a column from one table to a matching column in another table.

4. What is a 'star schema'?

A star schema has a central fact table connected to dimension tables in a star-like layout.

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

The Sales table is the fact table as it contains transactional data like Quantity, Date, etc.

7. Why is ProductID in Sales.csv a foreign key?

Because it links each sale record to a product listed in the Products table.

8. Fix a relationship error where ProductID has mismatched data types.

Change the data type of ProductID in both tables (Sales and Products) to match, using Power Query or the Data view.

9. Explain why a star schema improves performance.

It simplifies the data model, reduces table joins, and enhances query efficiency.

11. Optimize a model with circular relationships how would you resolve it?

Avoid creating relationships that loop back. Use DAX functions or redesign the model with bridge tables.

13. Handle a many-to-many relationship between Customers and Products.

Introduce a bridge table that connects both via separate One-to-Many relationships.

14. Use bidirectional filtering sparingly when is it appropriate?

Use it when needed for accurate filtering across both directions, e.g., for slicers or advanced calculations.

15. Write DAX to enforce referential integrity if a CustomerID is deleted.

Use `IF(ISBLANK(RELATED(Customer[Name])), "Orphan Record", Customer[Name])` to detect missing related entries.