What is a primary key in a table?

A primary key is a unique identifier for each row in a table. It ensures no duplicate or null values.

Name the two types of table relationships in Power BI.

• One-to-Many (most common)
• Many-to-Many

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

Go to 'Model View' → Drag and drop the key column from one table to another, or use 'Manage Relationships'.

What is a 'star schema'?

A star schema is a data model design where a central fact table connects to multiple dimension tables, forming a star-like structure.

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

The Sales table, as it stores transactional data like OrderID, CustomerID, ProductID, Quantity, and OrderDate.

Link Sales.csv to Customers.csv using CustomerID (one-to-many).

Customer[CustomerID] (one) → Sales[CustomerID] (many).

Why is ProductID in Sales.csv a foreign key?

Because it references ProductID in the Products table, creating a relationship between sales transactions and product details.

Fix a relationship error where ProductID has mismatched data types.

Ensure both Sales[ProductID] and Products[ProductID] are of the same data type (e.g., Whole Number).

Explain why a star schema improves performance.

It reduces complexity, avoids circular references, improves query performance, and is optimized for BI tools.

Add a new column TotalSales in Sales (Quantity * Price from Products).

DAX Formula:
TotalSales = Sales[Quantity] * RELATED(Products[Price])

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

Break cycles by removing unnecessary relationships, introducing bridge tables, or redesigning the schema.

Create a role-playing dimension for OrderDate and ShipDate.

Duplicate the Date table → Relate one to OrderDate and another to ShipDate.

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

Introduce a bridge table (e.g., Sales) to resolve many-to-many relationships.

Use bidirectional filtering sparingly—when is it appropriate?

When you need both tables to filter each other (e.g., for accurate many-to-many analysis). However, it can impact performance.

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

ValidCustomerSales = CALCULATE(SUM(Sales[Quantity]),
NOT(ISBLANK(RELATED(Customer[CustomerID]))))