**1. Basic SQL Queries**

These cover fundamental skills.

1. **Retrieve all columns** from the table.
2. Select only Order ID, Order Date, Customer Name, and Sales.
3. Filter orders where Region = 'West'.
4. Show orders with Sales > 500 and Profit > 0.
5. List unique Ship Mode values.
6. Count total number of orders.
7. Count orders for each Region.
8. Sort products by highest Profit.

**2. Aggregations & Grouping**

Show you understand GROUP BY and HAVING.  
9. Total sales per Category.  
10. Average discount per Region.  
11. Total profit per State, sorted by highest profit.  
12. Top 5 cities by total sales.  
13. Number of orders per Customer ID.  
14. Highest sales month per year.  
15. Total quantity sold per Sub-Category with more than 1,000 units sold.

**3. Date & Time Functions**

Work with order and shipping dates.  
16. Extract Year, Month from Order Date.  
17. Calculate days to ship for each order (Ship Date - Order Date).  
18. Average shipping time per Region.  
19. Sales trends by month.  
20. Identify the quarter with the highest profit.

**4. Joins & Multiple Tables**

If you split this dataset into **Orders Table** and **Products Table**, you can:  
21. Join customer details with sales records.  
22. Join product details to calculate average sales per category.

**5. String Functions**

Use LIKE, SUBSTRING, etc.  
23. Find customers whose names start with "S".  
24. Search product names containing "Table".  
25. Extract first word of Product Name.

**6. Window Functions**

Advanced analytics queries.  
26. Rank products by total sales in each category (RANK()).  
27. Find the top customer in each region by sales.  
28. Calculate running total of sales by Order Date.  
29. Compute moving average of sales per month.

**7. Subqueries**

1. Find all orders where sales are above the **average sales** of all orders.
2. Customers who placed more orders than the average number of orders per customer.
3. Products with above-average profit margin.

**8. CTEs & Advanced Logic**

1. Use a CTE to find each customer’s first and last purchase date.
2. Use a CTE to calculate total sales, then filter top 10% customers.
3. Use a recursive CTE to generate a calendar table for missing dates.

**9. Case Statements**

1. Categorize orders as:

* "High Profit" if Profit > 100
* "Low Profit" if Profit < 0
* "Moderate" otherwise

1. Assign "Fast", "Normal", "Slow" shipping based on days to ship.

**10. Complex Analytical Queries**

1. Year-over-year sales growth percentage.
2. Identify most profitable sub-category in each region.
3. Find customers who switched from buying low-priced items to high-priced items over time.

**1. Basic Queries**

* List all orders placed in January 2017.
* Find all customers from "California" who purchased more than $500 in total.
* Show the top 5 products by total sales.

**2. Aggregations**

* Calculate total sales, quantity, and profit for each region.
* Find the average discount given per category.
* Which sub-category has the highest profit margin?  
  *(Profit margin = Profit / Sales)*

**3. Date-Based Insights**

* Find the month with the highest sales in each year.
* Calculate the average delivery time (Ship Date – Order Date) per region.
* Find the peak sales season for each category.

**4. Customer & Product Analysis**

* Find customers who purchased in every year available in the dataset.
* Which customer brought the highest lifetime value (total sales)?
* Identify products with negative total profit (loss-making).

**5. Advanced Joins & Subqueries**

*(If you split the dataset into tables like Orders, Customers, Products)*

* Find customers who never purchased from the "Furniture" category.
* List products that were sold in more than 3 different regions.

**6. Window Functions**

* Rank products by total sales within each category.
* For each region, show the top 3 customers by profit.
* Calculate the running total of sales per month.

**7. CTEs & Recursive Queries**

* Use a CTE to find the monthly profit trend and flag months with a decline.
* Recursive query to list years from the dataset’s first order year to the latest.

**8. Data Quality Checks**

* Identify any orders where the Ship Date is earlier than the Order Date.
* Find duplicate rows based on Order ID & Product ID.

**9. Business-Oriented Questions**

* If we increase prices by 10%, what would have been the total revenue?
* How much profit would we gain if we reduced the discount by 5% across all products?
* Which shipping mode has the shortest average delivery time?

**10. Complex Challenge**

* **Customer Retention Analysis:** Find customers who ordered in year Y and returned in year Y+1.
* **Basket Analysis:** Find the most common combination of category purchases in the same order.