1. States with the Highest Profit

```sql
WITH temp AS (
SELECT
state,
SUM(profit) as sum_profit,
SUM(amount) as sum_sales
FROM dane
GROUP BY state
ORDER BY sum_profit DESC
)
SELECT *,
ROUND(sum_profit*100/sum_sales,0) AS proc_margin
FROM temp
```

	state text	sum_profit bigint	sum_sales bigint	proc_margin numeric
1	Florida	308706	1091174	28
2	New York	308506	1130048	27
3	California	278814	1086436	25
4	Texas	257780	1011475	25
5	Illinois	240372	978738	24
6	Ohio	216519	884768	24

- Florida generates the highest total profit despite not recording the highest total sales. This suggests a higher profit margin and stronger overall profitability compared to other states
- Observed positive relation between total sales and profit margin. States with higher sales tend to achieve slightly higher margins
- Profit margins remain relatively consistant across states (24–28%)

2. Most Profitable Category in Each State

```sql
WITH temp AS (
SELECT
state,
category,
SUM(profit) as sum_profit,
SUM(profit)*100/SUM(SUM(profit)) OVER (PARTITION BY state) as p_profit,
ROW_NUMBER() OVER (PARTITION BY state ORDER BY SUM(profit) DESC) as num
FROM dane
GROUP BY state, category
)
SELECT state, category,sum_profit, ROUND(p_profit,2) as proc_profit
FROM temp
WHERE num=1
ORDER BY sum_profit DESC
```

	state text	category text	sum_profit bigint	proc_profit numeric
1	California	Furniture	115391	41.39
2	Florida	Electronics	111892	36.25
3	New York	Office Supplies	108449	35.15
4	Texas	Electronics	103942	40.32
5	Illinois	Office Supplies	91755	38.17
6	Ohio	Furniture	80369	37.12

- The most profitable product category varies across states, indicating differences in local demand and market structure
- A particularly strong category dominance is visible in California (Furniture) and in Texas (Electronics), where over 40% of total profit is generated by the leading category

3. Sales vs Profitability Analysis (for sub-categories with sales >= 300k)

```sql
WITH temp AS (
SELECT
sub_category,
category,
SUM(profit) as sum_profit,
SUM(amount) as sum_sales
FROM dane
GROUP BY category,sub_category
HAVING SUM(amount)>=300000
)
SELECT *,
ROUND(sum_profit*100/sum_sales,0) as proc_margin
FROM temp
ORDER BY sum_sales DESC
```

	sub_category text	category text	sum_profit bigint	sum_sales bigint	proc_margin numeric
1	Markers	Office Supplies	174749	627875	27
2	Tables	Furniture	156796	625177	25
3	Sofas	Furniture	142854	568367	25
4	Printers	Electronics	146259	566359	25
5	Electronic Gam...	Electronics	148454	565092	26
6	Pens	Office Supplies	129846	552269	23
7	Paper	Office Supplies	149723	524755	28
8	Phones	Electronics	113607	503055	22
9	Chairs	Furniture	122892	431964	28
10	Laptops	Electronics	110260	419950	26
11	Bookcases	Furniture	118000	413165	28
12	Binders	Office Supplies	97257	384611	25

- High sales volume at the sub-category level does not necessarily correlate with higher profit margins
- The highest sales and total profit are generated by Markers and Tablets. However, the highest profit margins are achieved by Paper, Chairs and Bookcases (28%), followed by Markers (27%)
- The lowest profit margins are observed for Phones (22%) and Pens (23%)

4. Year-Over-Year Perfomance Analysis

```sql
WITH sums AS (
SELECT
year,
SUM(profit) AS sum_profit,
SUM(amount) AS sum_sales
FROM dane
GROUP BY year
ORDER BY year
),
yoy AS (
SELECT *, ROUND(sum_profit*100/sum_sales,0) AS proc_margin,
LAG(sum_profit) OVER (ORDER BY year) AS prev_profit,
LAG(sum_sales) OVER (ORDER BY year) AS prev_sales
FROM sums
)
SELECT
year,
ROUND((sum_profit-prev_profit)*100/prev_profit,1) AS yoy_profit,
ROUND((sum_sales-prev_sales)*100/prev_sales,1) AS yoy_sales,
proc_margin
FROM yoy
```

	year integer	yoy_profit numeric	yoy_sales numeric	proc_margin numeric
1	2020	[null]	[null]	26
2	2021	26.0	37.0	23
3	2022	38.0	23.0	26
4	2023	-18.0	-15.0	26
5	2024	-4.0	-2.0	25

- **2021**: Strong growth in both profit and sales
- **2022**: Continued growth in profit and sales, with an improvement in margin. These two years represent a period of strong performance for the company
- **2023**: A noticeable decline in both profit and sales, while the margin remained stable at 26%. This suggests the end of the growth phase and the beginning of a slowdown.
- **2024**: A slight further decrease in profit and sales, indicating that the decline is slowing down and the company may be stabilizing

5. Sales Trends by Months

```sql
WITH temp AS(
SELECT
month,
ROUND(AVG(profit),0) as a_profit,
CASE
WHEN month='styczeń' OR month='luty' OR month='marzec' THEN 1
WHEN month='kwiecień' OR month='maj' OR month='czerwiec' THEN 2
WHEN month='lipiec' OR month='sierpień' OR month='wrzesień' THEN 3
WHEN month='październik' OR month='listopad' OR month='grudzień' THEN 4
END AS quarter
FROM dane
GROUP BY month, year
)
SELECT month, ROUND(AVG(a_profit),0) AS avg_profit, quarter
FROM temp
GROUP BY month, quarter
ORDER BY avg_profit DESC
```

	month text	avg_profit numeric	quarter integer
1	marzec	1630	1
2	sierpień	1472	3
3	wrzesień	1412	3
4	czerwiec	1356	2
5	kwiecień	1343	2
6	lipiec	1337	3
7	listopad	1310	4
8	październik	1292	4
9	luty	1282	1
10	grudzień	1255	4
11	styczeń	1218	1
12	maj	1209	2

- The highest average profit is observed in March (1630), while the lowest is recorded in May (1209)
- The difference between the most and least profitable months is around 25%, which suggests seasonality in sales
- Higher profits are generally observed in the 2nd and 3rd quarters than in 1st and 4th quarters