SUMX Function

1. What is the total sales amount by product and segment? Assuming the Sales column has not been already calculated.

Explanation:
This question is relevant for understanding which products are performing well in different market segments, allowing for targeted marketing strategies and product development.

Syntax:
Total Sales = SUMX('Dashboard dataset', 'Dashboard dataset'[Units Sold] * 'Dashboard dataset'[Unit Price])

Suggested visual:

A stacked bar chart or stacked column chart would be ideal for comparing total sales across products and segments.

• Drag the "Product" field to the Axis area.
• Drag the "Segment" field to the Legend area.
• Drag the "Total Sales" measure you created to the Values area.

AVERAGE Function

2. What is the average unit price across different products?

Explanation:
This question can help identify pricing strategies across the product range, offering insights into how pricing varies between products and potentially impacting sales strategy and product development.

Syntax:
Avg unit price = AVERAGE('Dashboard dataset'[Unit Price])

Suggested visual:

A stacked bar chart or stacked column chart would be ideal for comparing total sales across products and segments.

• Drag the "Product" field to the Axis area.
• Drag the " Avg unit price " measure you created to the Values area.

AVERAGEX & AVERAGE Functions

3. How does the average unit price vary across different countries, and what is the impact of discount bands on it?

Explanation:

This question seeks to understand the pricing strategy in various markets and how discounts affect the selling price on average. To extract this information, you can use a combination of DAX functions to calculate the average unit price by country and discount band.

Syntax:

```
Average Unit Price by Country and Discount = AVERAGEX(
   SUMMARIZE(
      'Dashboard dataset',
      [Country],
      [Discount Band],
      "Avg Unit Price", AVERAGE('Dashboard dataset'[Unit Price])
   ),[Avg Unit Price])
```

Suggested visual:

A heatmap or a clustered bar chart would be effective.

For a heatmap:
Rows: Countries
Columns: Discount Bands
Colour Intensity: Average Unit Price (the higher the price, the more intense the colour).
This visualisation allows quick identification of patterns or anomalies in pricing strategies across different markets and how discounting affects pricing.

For a clustered bar chart:
• X-Axis: Countries
• Y-Axis: Average Unit Price
• Bars: Grouped by Discount Band within each country.

AVERAGE and SUM Functions

4. What is the profitability per unit sold for each product, and how does it vary by market segment?"

Explanation:
This question aims to uncover the profitability of each product across different market segments, helping to identify which products are most profitable and in which segments they perform best. To answer this, you would calculate the profit per unit (by subtracting the cost of goods sold (COGS) per unit from the selling price per unit) and then aggregate this information by product and segment.

Syntax:
Profit per Unit = AVERAGE('Dashboard dataset'[Unit Price]) - (SUM('Dashboard dataset'[COGS]) / SUM('Dashboard dataset'[Units Sold]))

Suggested visual:

For visualising the profit per unit by product for each market segment, a treemap or bubble chart could be particularly effective:

Treemap:

This visualisation is suitable for hierarchical data and can effectively show the profit per unit for each product within market segments. Each segment can be a large rectangle, with smaller rectangles inside it representing each product's contribution to the segment's overall profitability. The size of each product rectangle would be proportional to the profit per unit, allowing for easy comparison across products and segments.

Bubble Chart: In a bubble chart:

- X-Axis: Market Segment
- Y-Axis: Profit per Unit
- Bubble Size: Volume of Units Sold
- Bubble Colour: Product

VARX.P & AVERAGE Functions

5. What is the variance in units sold across different products in each country?

Explanation:

This question aims to uncover the consistency (or lack thereof) in the number of units sold for different products within each country, which can provide insights into market demand variability and product performance stability.

Syntax:

```
Variance Units Sold by Product and Country = VARX.P(GROUPBY(
        'Dashboard dataset',
        'Dashboard dataset'[Country],
        'Dashboard dataset'[Product]
    ),
    CALCULATE(AVERAGE('Dashboard dataset'[Units Sold])))
```

Suggested visual:

A heatmap or a treemap could be particularly effective for visualizing this information.

Heatmap Visualisation

• X-Axis (Columns): Products. Each column represents a different product. This arrangement allows viewers to compare across products horizontally.
• Y-Axis (Rows): Countries. Each row represents a different country. This setup facilitates comparison across countries vertically.
• Colour Intensity: Represents the variance in units sold. Higher variance could be represented by a more intense or warmer colour, indicating greater fluctuation in the number of units sold for a product in a country. Lower variance could be represented by a cooler or less intense colour, indicating more consistency in sales volume.

Treemap Visualisation

Treemaps don't have traditional axes like bar charts or line charts, but they do have hierarchical structures that allow for effective data representation:

• Blocks (Rectangles): Each block represents a combination of country and product, with the entire visualisation encompassing all such combinations.
• Block Size: Represents the variance in units sold. Larger blocks indicate a higher variance in units sold for that product in the specified country, highlighting areas with more significant sales fluctuations.
• Block Colour: Could also represent the variance or could be used to distinguish between countries for easier visualisation. Similar to the heatmap, a range of colours could indicate the level of variance, or different colours could simply represent different countries for quick identification.

SUM & DISTINCTCOUNT Functions

6. What is the total number of units sold per segment, adjusted for the number of distinct products sold in each segment?

Explanation:

This question aims to analyse the efficiency of sales by segment, considering the

diversity of products sold. It requires calculating the total units sold per segment and then adjusting this figure by the number of distinct products in each segment to understand sales performance relative to product range.

Syntax:

Adjusted Units Sold per Segment = SUM('Dashboard dataset'[Units Sold]) / DISTINCTCOUNT('Dashboard dataset'[Product])

Suggested visual:

A bar chart would serve well to visualise this data. Each bar could represent a different market segment, with the height of the bar indicating the adjusted total units sold for that segment. This visualisation allows stakeholders to compare performance across segments, considering the diversity of products sold in each segment.

• X-Axis: Market Segments. Each category on the axis represents a different market segment (e.g., Channel Partners, Enterprise, Midmarket, Small Business).
• Y-Axis: Adjusted Units Sold. This axis quantifies the average or adjusted number of units sold per distinct product in each segment, providing a comparative measure of sales efficiency or effectiveness across segments.

SUM & SUMX Functions

7. Which product has the highest sales to manufacturing cost ratio across all market segments?

Explanation:

This question aims to identify the most cost-efficient products in terms of the ratio of sales to manufacturing costs. Understanding this ratio can help highlight which products offer the best return on the cost of production, a key metric for guiding production and marketing strategies.

Syntax:
Sales to Manufacturing Cost Ratio = SUM('Dashboard dataset'[Sales]) / SUMX('Dashboard dataset', 'Dashboard dataset'[Units Sold] * 'Dashboard dataset'[Manufacturing Price])

Suggested visual:

A bar chart would be effective for visualising this measure:

• X-Axis: Products. This axis lists all the products present in the dataset, allowing for a direct comparison of their performance in terms of the sales to manufacturing cost ratio.
• Y-Axis: Sales to Manufacturing Cost Ratio. The calculated measure would be plotted on this axis, showcasing the efficiency of each product in generating sales relative to its manufacturing costs.
• Colour or Details: Could be used to differentiate market segments if the analysis needs to drill down further, offering insights into which segments these efficient products perform best in.

STDEV.P Function

8. What is the standard deviation of sales across different segments to identify volatility in sales performance?

Explanation:

This question seeks to understand the variability or consistency of sales within each market segment. A high standard deviation indicates greater volatility, suggesting that sales performance is less predictable and more variable. In contrast, a low standard deviation suggests more stable sales performance within that segment.
Syntax:
Segment Sales StdDev = CALCULATE(STDEV.P('Dashboard dataset'[Sales]), ALLEXCEPT('Dashboard dataset', 'Dashboard dataset'[Segment]))

Suggested visual:

Bar Chart:
• X-Axis: Market Segments (from 'Dashboard dataset'[Segment]).
• Y-Axis: Segment Sales StdDev (the standard deviation of sales).

MAX Function

9. What are the maximum sales achieved by any single transaction across each product category?

Explanation:

This question aims to identify the peak sales performance for individual transactions within each product category, providing insights into the potential sales ceiling and highlighting best-case scenarios. Understanding the maximum sales achieved can help in setting benchmarks and expectations for sales strategies.

Syntax:

```
Max Sales by Product Category = CALCULATE(MAX('Dashboard
dataset'[Sales ]), ALLEXCEPT('Dashboard dataset', 'Dashboard
dataset'[Product]))
```

Suggested visual:

A column chart would be well-suited for visualising the maximum sales achieved by product category:

- X-Axis: Product Categories. This axis lists the different product categories available in the dataset, allowing for an easy comparison across categories.
- Y-Axis: Max Sales by Product Category. This axis shows the maximum sales value achieved in each category, highlighting the peak performance.
- Colour Coding or Details: Additional details could include the product name or transaction date for the maximum sales transaction, providing deeper insights into when and with which products these peaks were achieved.

MEDIAN & VAR.P Functions

10. Analyse Performance by segments with Median and Variance of Unit Sales
Which segments exhibit the highest median unit sales while maintaining low variance, indicating consistent performance?

Syntax:

```
Median Units Sold by Segment = CALCULATE(MEDIAN('Dashboard
dataset'[Units Sold]), ALLEXCEPT('Dashboard dataset',
'Dashboard dataset'[Segment]))
```

```
Variance Units Sold by Segment = CALCULATE(VAR.P('Dashboard
dataset'[Units Sold]),ALLEXCEPT('Dashboard dataset', 'Dashboard
dataset'[Segment]))
```

Suggested visual:

Create a scatter plot with "Country" on the X-axis and "Median Units Sold" on the Y-axis.
Add another Y-axis and plot "Unit Sales Variance" on it.
Use bubble size to represent the total number of units sold in each country.
This visualisation helps identify regions with both high median sales and low variance, representing consistently strong performance.

Alternative Visualisation:

Create a bubble chart with "Median Units Sold" on the X-axis and "Unit Sales Variance" on the Y-axis.
Use bubble size to represent the total number of units sold in each country.
This helps visualise the concentration of countries based on median sales and variance, highlighting outliers with either very high or very low variances.