

MASTERCLASS: Excel Formulas for Data Analysis

Dataset: Sales.csv (your 15-row dataset)

Format: 1 Worksheet per Formula

Goal: Use each formula to *answer business questions*

SHEET 1: SUM — Total Performance

Formula: =SUM(range)

Concept: Add up numeric data to find totals.

Business Question:

1. What is the **total revenue** from all sales?
 - o =SUM(G2:G16)
2. What is the **total units sold**?
 - o =SUM(E2:E16)

Analyst Insight:

This tells us overall performance — total revenue and product volume. It's the first metric any sales manager looks at.

Practice Tasks:

- Calculate total revenue for each **region** (use filters).
- Add up total **targets** to see the combined sales goal.

SHEET 2: AVERAGE — Typical Performance

Formula: =AVERAGE(range)

Concept: Find the typical or mean value.

Business Question:

1. What is the **average revenue per sale**?

- =AVERAGE(G2:G16)
- 2. What is the **average unit price**?
 - =AVERAGE(F2:F16)

Analyst Insight:

Averages reveal trends – e.g., “On average, each sale brings in KSh ____.”

Practice Tasks:

- What’s the average revenue for closed vs pending deals? •
- What’s the average target value across all regions?

SHEET 3: COUNT – How Many Have Data

Formula: =COUNT(range)

Concept: Count cells with numbers.

Business Question:

1. How many sales records have **revenue values** filled?
 - =COUNT(G2:G16)
2. How many records have **Units Sold** entered?
 - =COUNT(E2:E16)

Analyst Insight:

This helps gauge data completeness – are we missing

records? Practice Tasks:

- Count how many sales had valid “Targets.”
- How many records have numeric “Unit Prices”?

SHEET 4: COUNTA – Count All Entries

Formula: =COUNTA(range)

Concept: Count all non-empty cells (numbers or text).

Business Question:

1. How many **sales records** exist in total?
 - o `=COUNTA(B2:B16)`
2. How many **regions** have been filled (no blanks)?
 - o `=COUNTA(C2:C16)`

Analyst Insight:

Analysts use COUNTA to measure dataset completeness and detect missing entries.

Practice Tasks:

- Count how many products have names.
- Compare COUNTA vs COUNT on the same range to see the difference.

SHEET 5: COUNTBLANK – Missing Data

Formula: `=COUNTBLANK(range)`

Concept: Identify data gaps.

Business Question:

1. How many records have **missing Units Sold**?
 - o `=COUNTBLANK(E2:E16)`
2. How many records have **missing Revenue**?
 - o `=COUNTBLANK(G2:G16)`

Analyst Insight:

Missing data = risk for analysis. You can't trust insights from incomplete data.

Practice Tasks:

- Count blanks in Target column.
- Identify the row numbers with missing data (use filters).

SHEET 6: MIN & MAX – Range and Extremes

Formulas:

- $=\text{MIN}(\text{range})$ → Lowest value
- $=\text{MAX}(\text{range})$ → Highest value

Business Questions:

1. What is the **lowest revenue** recorded?
 - $=\text{MIN}(\text{G2:G16})$
2. What is the **highest revenue** recorded?
 - $=\text{MAX}(\text{G2:G16})$

Analyst Insight:

These values show performance extremes – top performer vs

lowest. Practice Tasks:

- Find smallest and largest target values.
- Compare with actual revenue to find who exceeded targets.

SHEET 7: LEN – Text Length

Formula: $=\text{LEN}(\text{cell})$

Concept: Count the number of characters in a cell.

Business Questions:

1. How many characters are in each **Salesperson's name**?
 - $=\text{LEN}(\text{C2})$

Analyst Insight:

Use LEN to find inconsistencies in text fields – helps clean up names or

product codes.

Practice Tasks:

- Find which names are unusually long or short.
- Compare lengths before and after TRIM (next sheet).

SHEET 8: TRIM — Clean Text

Formula: =TRIM(cell)

Concept: Remove extra spaces from text.

Business Question:

1. Are there any Salesperson names or Products with hidden spaces?
 - =TRIM(C2)

Analyst Insight:

TRIM prevents errors in lookups, joins, and data consistency checks.

Practice Tasks:

- Clean all salesperson names and copy results into a new column.
- Use LEN to confirm space removal (LEN before vs after).

SHEET 9: IF — Logical Thinking

Formula:

=IF(G2>=H2,"Met Target","Below Target")

Concept: Test a condition and return one result if true, another if false.

Business Questions:

1. Did each salesperson **meet their target?**
 - Create new column: "Performance"
2. Which sales are **below target?**

Analyst Insight:

IF formulas create logic-driven flags – a foundation for dashboard indicators.

Practice Tasks:

- Add conditional formatting (green for Met, red for Below).
- Count how many met vs missed targets manually.