📊 Google Sheets All Formulas — Basic to Advanced (Quick Reference Sheet)

🔹 1. Math & Statistical Functions

SUM(range) – Range ka total nikalta hai
Example: SUM(A1:A5) → 100

AVERAGE(range) – Range ka average nikalta hai
Example: AVERAGE(A1:A5) → 20

COUNT(range) – Sirf numeric cells count karta hai
Example: COUNT(A1:A5) → 3

SUMIF(range, criteria, [sum_range]) – Condition ke basis pe sum karta hai
Example: SUMIF(A2:A10, ">50", B2:B10)

COUNTIF(range, criteria) – Condition ke basis pe counting karta hai
Example: COUNTIF(A2:A10, "Yes")

PERCENTILE.INC(range, k) – Percentile value nikalta hai
Example: PERCENTILE.INC(A2:A10, 0.9)

🔹 2. Text Functions

CONCAT(A1,B1) – Do text cells join karta hai
Example: CONCAT("Ankit","Kumar") → “AnkitKumar”

TEXTJOIN(", ", TRUE, A1:A4) – Multiple cells join karta hai
Example: “A, B, C”

LEFT(text, num_chars) – Text ke left side se n characters nikalta hai
Example: LEFT("Ankit",3) → “Ank”

RIGHT(text, num_chars) – Text ke right side se n characters nikalta hai
Example: RIGHT("Ankit",2) → “it”

MID(text, start, num_chars) – Text ke beech se characters nikalta hai
Example: MID("Ankit",2,3) → “nki”

LEN(text) – Text ki length batata hai
Example: LEN("Ankit") → 5

SUBSTITUTE(text, old_text, new_text) – Text replace karta hai
Example: SUBSTITUTE("Data Analyst","Data","Excel") → “Excel Analyst”

🔹 3. Date & Time Functions

TODAY() – Aaj ki date return karta hai
Example: 03-Nov-2025

NOW() – Current date + time show karta hai

DAY(date), **MONTH(date)**, **YEAR(date)** – Date ke individual parts nikalta hai

NETWORKDAYS(start_date, end_date, [holidays]) – Working days count karta hai (Saturday-Sunday exclude karta hai)

EOMONTH(start_date, months) – Month ke end date return karta hai
Example: EOMONTH(A1,0) → 30-Nov-2025

🔹 4. Lookup & Reference Functions

VLOOKUP(lookup_value, table, col_index, [is_sorted]) – Table me vertically value find karta hai
Example: VLOOKUP("Ankit",A2:D10,3,FALSE)

HLOOKUP(lookup_value, table, row_index, [is_sorted]) – Horizontally value find karta hai

INDEX(range, row_num, [col_num]) – Row aur column ke intersection se data fetch karta hai

MATCH(lookup_value, lookup_array, [match_type]) – Lookup value ka position batata hai

FILTER(range, condition) – Condition ke basis pe filtered data return karta hai

UNIQUE(range) – Duplicate hatakar unique values return karta hai

SORT(range, sort_column, is_ascending) – Data ko ascending ya descending order me sort karta hai

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🔹 5. Logical Functions

IF(condition, value_if_true, value_if_false) – Condition check karta hai
Example: IF(A2>50,"Pass","Fail")

AND(condition1, condition2, …) – Sab condition TRUE hone par TRUE return karta hai

OR(condition1, condition2, …) – Koi ek TRUE hone par TRUE return karta hai

IFS(condition1, value1, condition2, value2, …) – Multiple IF ka shortcut version

IFERROR(value, value_if_error) – Error hone par default value show karta hai
Example: IFERROR(A2/B2,0)

🔹 6. Array & Advanced Functions

ARRAYFORMULA(formula) – Formula automatically range me apply karta hai
Example: ARRAYFORMULA(A2:A10*B2:B10)

SEQUENCE(rows, [columns], [start], [step]) – Number sequence generate karta hai
Example: SEQUENCE(5) → 1, 2, 3, 4, 5

RANDARRAY([rows], [columns], min, max, [whole_number]) – Random values generate karta hai
Example: RANDARRAY(5,1,1,100,TRUE)

QUERY(range, query_string, [headers]) – SQL-style query inside Sheets
Example: QUERY(A1:D10,"SELECT A,B WHERE C>1000")

IMPORTRANGE(spreadsheet_url, range_string) – Dusre Google Sheet se data import karta hai
Example: IMPORTRANGE("sheetURL","Sheet1!A1:B10")

🔹 7. Financial Functions

PMT(rate, nper, pv) – Loan EMI calculate karta hai
Example: PMT(10%/12,60,-500000) → ₹10,624

NPV(rate, values) – Net Present Value calculate karta hai

IRR(values) – Internal Rate of Return find karta hai

🔹 8. Web & Data Import Functions (Google Only)

GOOGLEFINANCE("NSE:TCS") – Real-time stock data show karta hai

IMPORTDATA("url") – Web CSV/TSV data import karta hai

IMPORTHTML("url","table",1) – Web page ki table import karta hai

IMPORTRANGE("sheet_url","Sheet1!A1:B10") – Dusre Sheet ka data import karta hai

QUERY(range,"SQL-style query") – Advance data filter jaisa kaam karta hai

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🔹 9. Dashboard & Formatting Functions

TEXT(A2,"₹#,##0") – Currency format me number show karta hai

TEXT(A2,"0.00%") – Percentage format me number show karta hai

HYPERLINK("https://linkedin.com","LinkedIn") – Clickable link create karta hai

IMAGE("URL") – Cell ke andar image show karta hai

SPARKLINE(A2:A10) – Cell ke andar chhota chart create karta hai

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🧠 Summary of Formula Levels

Basic: SUM, AVERAGE, COUNT, CONCAT, IF, TODAY
Intermediate: VLOOKUP, INDEX, MATCH, FILTER, TEXTJOIN, NETWORKDAYS
Advanced: ARRAYFORMULA, QUERY, IMPORTRANGE, GOOGLEFINANCE, SEQUENCE

💡 **Pro Tip:**

- Basic formulas Excel jaise hi hain.
- Intermediate aur Advanced formulas (QUERY, IMPORTRANGE, GOOGLEFINANCE) sirf Google Sheets me milte hain.
- Ye formulas **Data Analyst**, **Dashboard Developer**, aur **Business Reporting** ke liye most powerful tools hain.

📘 Google Sheets Intermediate Formulas (Wide Table Format)

🔹 1. VLOOKUP (Vertical Lookup)

Purpose:
Table ke ek column me di gayi value ke basis par doosre column ka data nikalta hai.

Example Table:

Name	City	Marks
Ankit	Delhi	85
Rahul	Pune	90
Neha	Mumbai	75

Priya	Noida	88

Formula: =VLOOKUP("Rahul", A2:C5, 3, FALSE)
Output: ✅ 90

Tip:

- FALSE → Exact match (recommended)
- TRUE → Approx match (alphabetical order required)

🔹 2. INDEX + MATCH (Powerful Lookup Combo)

Purpose:
INDEX aur MATCH milkar table me kisi bhi direction (left ya right) me data search karne ki power dete hain.

Example Table:

Name	City	Marks
Ankit	Delhi	85
Rahul	Pune	90
Neha	Mumbai	75

Priya	Noida	92

Formula: =INDEX(C2:C5, MATCH("Neha", A2:A5, 0))
Output: ✅ 75

Why Better than VLOOKUP:

- Left/right dono side lookup possible
- Table structure badalne par error nahi deta

🔹 3. MATCH (Position Finder)

Purpose:
Value ka position (row/column number) batata hai.

Example Table:

Name
Ankit
Rahul
Neha

Priya

Formula: =MATCH("Neha", A2:A5, 0)
Output: ✅ 3
("Neha" third position par hai)

Note:

- 0 → Exact match
- 1 → Less than
- -1 → Greater than

🔹 4. FILTER (Dynamic Data Extractor)

Purpose:
Condition ke basis par data filter karta hai (live dynamic result deta hai).

Example Table:

Name	City	Marks
Ankit	Delhi	85
Rahul	Pune	90

Neha	Delhi	70
Priya	Mumbai	88

Formula: =FILTER(A2:C5, B2:B5="Delhi")
Output:

Name	City	Marks
Ankit	Delhi	85
Neha	Delhi	70

Pro Tip:
FILTER + SORT + UNIQUE = 🔥 Live Dashboard Formula

🔹 5. TEXTJOIN (Smart Text Combine)

Purpose:
Multiple cells ke text ko combine karta hai ek separator ke sath (comma, dash, etc.)

Example Table:

Names
Ankit
Rahul
Neha
Priya

Formula: =TEXTJOIN(", ", TRUE, A2:A5)
Output: ✅ Ankit, Rahul, Neha, Priya

Tip:

- TRUE → Ignore empty cells
- FALSE → Include empty cells

🔹 6. NETWORKDAYS (Working Days Counter)

Purpose:
Do dates ke beech ke working (Mon–Fri) days count karta hai, weekends aur holidays ko exclude karta hai.

Example Table:

Start Date	End Date
01-Nov-2025	10-Nov-2025

Formula: =NETWORKDAYS(A2, B2)
Output: ✅ 7

Bonus Example:
=NETWORKDAYS(A2, B2, {"03-Nov-2025"}) → Custom holiday exclude karega

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🧭 Summary Table (Intermediate Level)

Formula	Purpose	Example Output
VLOOKUP	Table se data find karna	Rahul → 90
INDEX + MATCH	Flexible lookup left/right	Neha → 75
MATCH	Value ka position find karna	Neha → Row 3
FILTER	Condition ke basis par data filter	Delhi → 2 Records

TEXTJOIN	Multiple text combine karna	Ankit, Rahul, Neha, Priya
NETWORKDAYS	Working days count karna	7 Days

💡 Pro Tips for You (Ankit)

✅ INDEX + MATCH → “VLOOKUP ka advanced version”
✅ FILTER → Dashboards aur auto reports ke liye best
✅ TEXTJOIN → Data cleaning aur combined outputs ke liye perfect
✅ NETWORKDAYS → Project reporting & attendance ke liye useful

📘 Google Sheets Advanced Formulas (With Clear Examples)

🔹 1. ARRAYFORMULA (Apply Formula on Whole Column)

Purpose:
Ye formula ek saath **poori range** me apply hota hai — har row me formula likhne ki zarurat nahi.

Syntax:
ARRAYFORMULA(formula_or_range)

Example:
Column A me “Quantity” hai aur Column B me “Price”.
A2:A5 = 2, 3, 4, 5
B2:B5 = 100, 200, 300, 400

Formula:
`=ARRAYFORMULA(A2:A5 * B2:B5)`
Output:
200, 600, 1200, 2000

Use Case:
Auto calculation in entire column (like Total = Qty × Price)
Tip: Manual drag karne ki zarurat nahi — pura column fill ho jata hai automatically.

🔹 2. QUERY (SQL-Style Data Filtering)

Purpose:
QUERY function se tum **Google Sheets me SQL jaisa query language** use karke data filter, sort, aur summarize kar sakte ho.

Syntax:
QUERY(data_range, "SQL_query", [headers])

Example:
Tumhare pass A1:D10 me columns hain — Name, City, Sales, Month.

Formula:
`=QUERY(A1:D10, "SELECT A, B, C WHERE C > 1000 AND B = 'Delhi'")`
Output:
Sirf wo records show karega jahan Sales > 1000 aur City = Delhi.

Tip:

- QUERY function = Excel ke VLOOKUP + FILTER + PIVOT ka combination.
- “SELECT”, “WHERE”, “ORDER BY”, “LIMIT” jese SQL commands support karta hai.

🔹 3. IMPORTRANGE (Import Data from Another Sheet)

Purpose:
Ek **Google Sheet se dusre Google Sheet me data import** karne ke liye use hota hai.

Syntax:
IMPORTRANGE("spreadsheet_url", "range_string")

Example:
Formula:

```
=IMPORTRANGE("https://docs.google.com/spreadsheets/d/abc123xyz", "Sheet1!A1:C10")
```

Output:
Linked spreadsheet se A1:C10 range ka data import karega.

Tip:

- Pehli baar use karne par “Allow Access” karna hota hai.
- Dashboard ya consolidated report banane ke liye best.
- Real-time update hota hai — source sheet me change hota hai to yahan bhi change hota hai.

🔹 4. GOOGLEFINANCE (Live Stock & Currency Data)

Purpose:
Google Finance API se live market, stock, aur currency data import karta hai.

Syntax:
GOOGLEFINANCE("ticker", [attribute], [start_date], [end_date], [interval])

Example:

```
=GOOGLEFINANCE("NSE:TCS")
```

Output:
TCS (Tata Consultancy Services) ka live stock price aur details show karega.

Currency Example:

```
=GOOGLEFINANCE("CURRENCY:USDINR")
```

Output:
USD → INR ka current exchange rate.

Pro Tip:
Dashboard me real-time stock ya financial tracker banane ke liye perfect.

🔹 5. SEQUENCE (Auto Number / Date Generator)

Purpose:
Ek saath series (numbers, dates) generate karta hai bina manually fill kiye.

Syntax:
SEQUENCE(rows, [columns], [start], [step])

Example 1 (Numbers):

```
=SEQUENCE(10)
```

Output:
1
2
3
4
... 10

Example 2 (Dates):

```
=SEQUENCE(5, 1, DATE(2025,11,1), 1)
```

Output:
01-Nov-2025
02-Nov-2025
03-Nov-2025
04-Nov-2025
05-Nov-2025

Tip:

- Automated date lists, serial numbers ya time-series data ke liye useful.
- Dashboard auto-fill ke liye best.

🧭 Summary of Advanced Formulas

Formula	Purpose	Example Output
ARRAYFORMULA	Apply formula to whole column	Auto total column
QUERY	SQL-style data filter	Sales > 1000 in Delhi
IMPORTRANGE	Import data from another sheet	Linked sheet data
GOOGLEFINANCE	Real-time financial data	Stock or currency price
SEQUENCE	Generate number/date list	1, 2, 3... or Dates

💡 Pro Tips for You (Ankit)

✅ **ARRAYFORMULA** → Time-saving automation for entire column
✅ **QUERY** → Excel ke pivot + filter dono ka mix (powerful for analysis)
✅ **IMPORTRANGE** → Multiple sheets se ek dashboard me live data lana
✅ **GOOGLEFINANCE** → Real-time stock/currency tracking
✅ **SEQUENCE** → Numbering aur date auto generation

🚀 Professional Use

- Data Analysts use these formulas to make **Automated Dashboards**
- Combine: **IMPORTRANGE + QUERY + ARRAYFORMULA** → Live Business Reports
- Combine: **GOOGLEFINANCE + SEQUENCE** → Stock Trend Charts