Certainly! Here’s a comprehensive list of advanced Excel formulas and functions that you can learn to master Excel:

### \*\*Logical Functions\*\*

1. \*\*IF\*\*: Returns one value if a condition is true and another value if it's false.

2. \*\*AND\*\*: Returns TRUE if all conditions are true.

3. \*\*OR\*\*: Returns TRUE if any condition is true.

4. \*\*NOT\*\*: Reverses the logical value of its argument.

5. \*\*IFERROR\*\*: Returns a value if there is an error in the formula, otherwise returns the formula result.

6. \*\*IFS\*\*: Checks multiple conditions and returns a value corresponding to the first TRUE condition.

7. \*\*SWITCH\*\*: Evaluates an expression against a list of values and returns the corresponding result.

### \*\*Lookup and Reference Functions\*\*

1. \*\*VLOOKUP\*\*: Looks for a value in the first column of a range and returns a value in the same row from a specified column.

2. \*\*HLOOKUP\*\*: Looks for a value in the first row of a range and returns a value in the same column from a specified row.

3. \*\*INDEX\*\*: Returns a value or reference of the cell at the intersection of a particular row and column in a given range.

4. \*\*MATCH\*\*: Searches for a specified item in a range and returns the relative position of that item.

5. \*\*CHOOSE\*\*: Returns a value from a list based on an index number.

6. \*\*OFFSET\*\*: Returns a reference to a range that is a specified number of rows and columns from a cell or range.

7. \*\*INDIRECT\*\*: Returns the reference specified by a text string.

8. \*\*LOOKUP\*\*: Looks up values either from a one-row or one-column range.

9. \*\*FORMULATEXT\*\*: Returns the formula in a given cell as text.

### \*\*Text Functions\*\*

1. \*\*CONCATENATE/CONCAT\*\*: Joins several text strings into one string.

2. \*\*TEXTJOIN\*\*: Joins multiple text strings using a delimiter.

3. \*\*LEFT\*\*: Returns the specified number of characters from the start of a text string.

4. \*\*RIGHT\*\*: Returns the specified number of characters from the end of a text string.

5. \*\*MID\*\*: Returns a specified number of characters from the middle of a text string.

6. \*\*LEN\*\*: Returns the length of a text string.

7. \*\*TRIM\*\*: Removes extra spaces from text, leaving single spaces between words.

8. \*\*UPPER\*\*: Converts text to uppercase.

9. \*\*LOWER\*\*: Converts text to lowercase.

10. \*\*PROPER\*\*: Capitalizes the first letter of each word.

11. \*\*TEXT\*\*: Converts a value to text in a specific number format.

12. \*\*FIND\*\*: Finds one text string within another and returns the starting position.

13. \*\*SEARCH\*\*: Similar to FIND but case-insensitive.

14. \*\*REPLACE\*\*: Replaces part of a text string with another text string.

15. \*\*SUBSTITUTE\*\*: Replaces occurrences of a specified text string with another text string.

### \*\*Date and Time Functions\*\*

1. \*\*TODAY\*\*: Returns the current date.

2. \*\*NOW\*\*: Returns the current date and time.

3. \*\*DATE\*\*: Returns the date from year, month, and day values.

4. \*\*TIME\*\*: Returns the time from hour, minute, and second values.

5. \*\*YEAR\*\*: Extracts the year from a date.

6. \*\*MONTH\*\*: Extracts the month from a date.

7. \*\*DAY\*\*: Extracts the day from a date.

8. \*\*HOUR\*\*: Extracts the hour from a time.

9. \*\*MINUTE\*\*: Extracts the minute from a time.

10. \*\*SECOND\*\*: Extracts the second from a time.

11. \*\*WEEKDAY\*\*: Returns the day of the week corresponding to a date.

12. \*\*NETWORKDAYS\*\*: Returns the number of whole workdays between two dates.

13. \*\*WORKDAY\*\*: Returns a date after a specified number of workdays.

14. \*\*EOMONTH\*\*: Returns the last day of the month after a specified number of months.

15. \*\*EDATE\*\*: Returns the date that is a specified number of months before or after a start date.

16. \*\*DATEDIF\*\*: Calculates the difference between two dates in years, months, or days.

### \*\*Math and Trigonometry Functions\*\*

1. \*\*SUM\*\*: Adds all the numbers in a range.

2. \*\*SUMIF\*\*: Adds the cells specified by a given condition.

3. \*\*SUMIFS\*\*: Adds the cells specified by multiple conditions.

4. \*\*AVERAGE\*\*: Returns the average of the numbers.

5. \*\*AVERAGEIF\*\*: Returns the average of cells that meet a condition.

6. \*\*AVERAGEIFS\*\*: Returns the average of cells that meet multiple conditions.

7. \*\*COUNT\*\*: Counts the number of cells that contain numbers.

8. \*\*COUNTA\*\*: Counts the number of cells that are not empty.

9. \*\*COUNTIF\*\*: Counts the number of cells that meet a condition.

10. \*\*COUNTIFS\*\*: Counts the number of cells that meet multiple conditions.

11. \*\*MAX\*\*: Returns the maximum value in a range.

12. \*\*MIN\*\*: Returns the minimum value in a range.

13. \*\*PRODUCT\*\*: Multiplies all the numbers in a range.

14. \*\*MOD\*\*: Returns the remainder after a number is divided by a divisor.

15. \*\*ROUND\*\*: Rounds a number to a specified number of digits.

16. \*\*ROUNDUP\*\*: Rounds a number up to a specified number of digits.

17. \*\*ROUNDDOWN\*\*: Rounds a number down to a specified number of digits.

18. \*\*CEILING\*\*: Rounds a number up to the nearest multiple of significance.

19. \*\*FLOOR\*\*: Rounds a number down to the nearest multiple of significance.

20. \*\*RANDBETWEEN\*\*: Returns a random number between specified values.

### \*\*Statistical Functions\*\*

1. \*\*MEDIAN\*\*: Returns the median of the numbers.

2. \*\*MODE\*\*: Returns the most frequently occurring value in a range.

3. \*\*LARGE\*\*: Returns the k-th largest value in a range.

4. \*\*SMALL\*\*: Returns the k-th smallest value in a range.

5. \*\*PERCENTILE\*\*: Returns the k-th percentile of values in a range.

6. \*\*QUARTILE\*\*: Returns the quartile of a data set.

7. \*\*VAR\*\*: Estimates variance based on a sample.

8. \*\*VARP\*\*: Estimates variance based on an entire population.

9. \*\*STDEV\*\*: Estimates standard deviation based on a sample.

10. \*\*STDEVP\*\*: Estimates standard deviation based on an entire population.

11. \*\*FORECAST\*\*: Predicts a future value based on existing values.

### \*\*Engineering and Financial Functions\*\*

1. \*\*NPV\*\*: Calculates the net present value of an investment based on a series of periodic cash flows and a discount rate.

2. \*\*IRR\*\*: Calculates the internal rate of return for a series of cash flows.

3. \*\*XNPV\*\*: Calculates the net present value for a schedule of cash flows.

4. \*\*XIRR\*\*: Calculates the internal rate of return for a schedule of cash flows.

5. \*\*PMT\*\*: Calculates the payment for a loan based on constant payments and a constant interest rate.

6. \*\*IPMT\*\*: Calculates the interest payment for a given period of an investment.

7. \*\*PPMT\*\*: Calculates the principal payment for a given period of an investment.

8. \*\*FV\*\*: Calculates the future value of an investment based on periodic, constant payments and a constant interest rate.

9. \*\*PV\*\*: Calculates the present value of an investment.

### \*\*Array Formulas\*\*

1. \*\*ARRAYFORMULA\*\*: Allows you to apply a function or formula to a range of cells.

2. \*\*SEQUENCE\*\*: Generates a sequence of numbers in an array.

### \*\*Special Functions\*\*

1. \*\*HYPERLINK\*\*: Creates a shortcut or jump that opens a document stored on your computer, a network server, or the internet.

2. \*\*TRANSPOSE\*\*: Converts a vertical range of cells to a horizontal range, and vice versa.

3. \*\*UNIQUE\*\*: Returns a list of unique values in a range.

4. \*\*FILTER\*\*: Filters a range of data based on criteria you define.

5. \*\*SORT\*\*: Sorts the contents of a range or array.

6. \*\*SORTBY\*\*: Sorts the contents of a range or array based on the values in a corresponding range or array.

7. \*\*SPILL\*\*: Handles dynamic array formulas that can automatically expand to return multiple values.

Learning these functions and practicing them in real-world scenarios will significantly enhance your Excel proficiency and enable you to tackle complex data analysis and automation tasks effectively.