Microsoft Excel

Module 25 - Use of Fact, Power, Quotient and Mod Function in MS-Excel

In Excel, FACT calculates the factorial of a number, POWER raises a number to a specified power, QUOTIENT returns the integer portion of a division, and MOD returns the remainder after a division.

The FACT, POWER, QUOTIENT, and MOD functions are all math-related functions that can help with different types of calculations. Here's a breakdown of each one with examples:

You can find the **FACT**, **POWER**, **QUOTIENT**, and **MOD** functions in Microsoft Excel in a few different ways — here's how to locate and use them easily:

Where to Find These Functions in Excel:

Method 1: Using the "Insert Function" Button

1. Click on any cell where you want the formula.
2. Click the **fx** button (just to the left of the formula bar).
3. In the **Insert Function** dialog box:
   - Type the name of the function (e.g., FACT, POWER, etc.) in the search box.
   - Select it from the list and click **OK**.
4. Excel will guide you through filling in the function's arguments.

Method 2: From the Formulas Tab

1. Go to the **Formulas** tab on the Ribbon.
2. Click **Math & Trig** in the **Function Library** group.
3. Scroll through the list to find:
   - FACT – for factorial
   - POWER – to raise to a power
   - QUOTIENT – for integer division
   - MOD – to get the remainder

🔍 They're listed in alphabetical order, so it's easy to find.

Method 3: Typing Directly into a Cell

You can also just type them manually:

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- =FACT(5)
- =POWER(2,3)
- =QUOTIENT(10,3)
- =MOD(10,3)

Excel will auto-suggest the function as you type.

1. FACT(number)

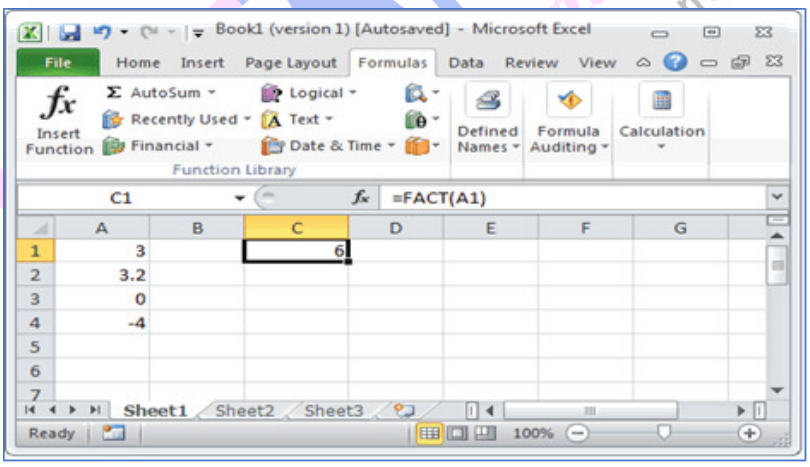
- **Purpose**: Returns the factorial of a number (n! = n × (n−1) × ... × 1).
- **Formula**: =FACT(number)
- **Example**: =FACT(5) returns **120** because 5! = 5×4×3×2×1 = 120.

Why we use it:

- For **mathematical** or **statistical** calculations.
- Often used in **permutations and combinations** (e.g., calculating how many ways something can be arranged).

Example Use Case:

- In a school project calculating how many ways to arrange 5 books: =FACT(5)



In probability: computing combinations like nCr = FACT(n)/(FACT(r)*FACT(n-r))

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2. POWER(number, power)

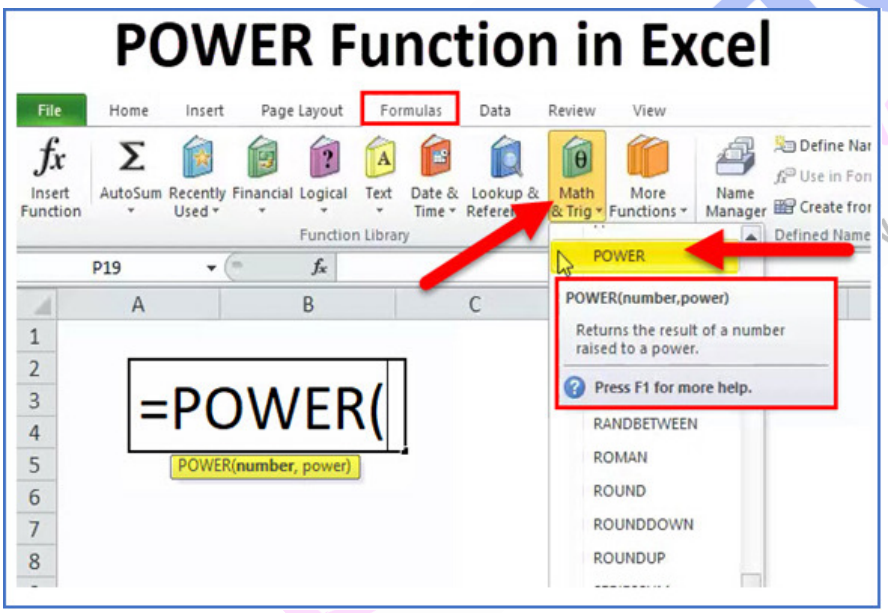
- **Purpose**: Returns the result of a number raised to a power.
- **Formula**: =POWER(number, power)
- **Example**: =POWER(2, 3) returns **8** because $2^3 = 8$.
- **Tip**: This is equivalent to using ^ — so =2^3 also gives 8.

Why we use it:

- For any calculation involving **raising numbers to a power** (exponents).
- Useful in **compound interest**, **physics**, **growth formulas**, etc.

Example Use Case:

- Calculating compound interest: =Principal * POWER(1 + rate, years)
- Population growth projections: =POWER(current_population, growth_rate)
- Population growth projections: =POWER(current_population, growth_rate)



3. QUOTIENT(numerator, denominator)

- **Purpose**: Returns only the **integer portion** of a division (ignores remainder).
- **Syntax**: =QUOTIENT(numerator, denominator)
- **Example**: =QUOTIENT(10, 3) returns **3**.
- **Note**: To get the remainder, you'd use the MOD function (see below).

Why we use it:

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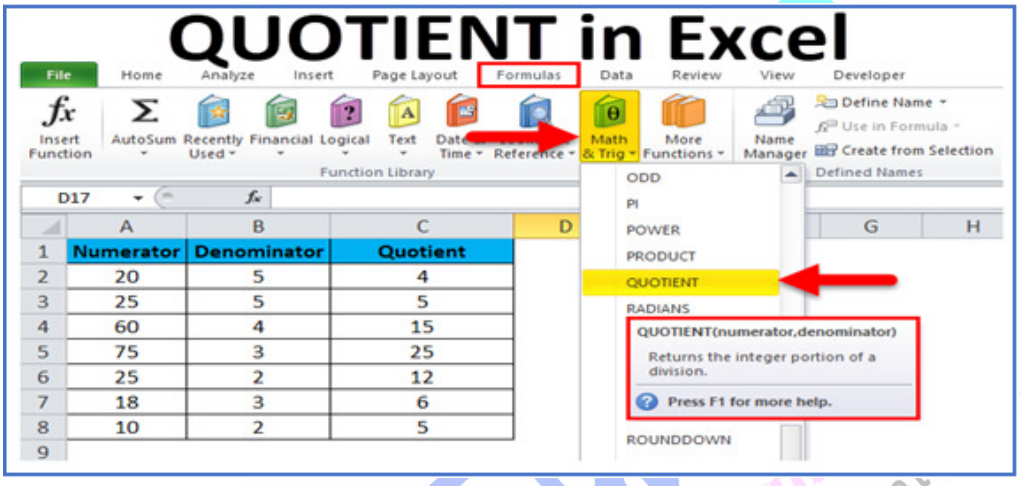
• When you need just the **whole number part** of a division (ignoring the decimal).
• Useful for **splitting things evenly**, like grouping or batching.

Example Use Case:

• You have 23 items and want to pack them into boxes that hold 5 each: =QUOTIENT(23,5) → 4 full boxes.
• Useful in resource planning or inventory management.



4. MOD(number, divisor)

• **Purpose**: Returns the **remainder** after division.
• **Syntax**: =MOD(number, divisor)
• **Example**: =MOD(10, 3) returns **1** because 10 ÷ 3 = 3 remainder 1.

Why we use it:

• To find the **remainder** after division.
• Very handy in **scheduling**, **cyclical patterns**, or figuring out **leftovers**.

Example Use Case:

• You're assigning 10 tasks to 3 people in a cycle, and want to see who gets which task: =MOD(task_number, 3)
• Determining if a number is **even or odd**: =MOD(number, 2) → 0 means even, 1 means odd.

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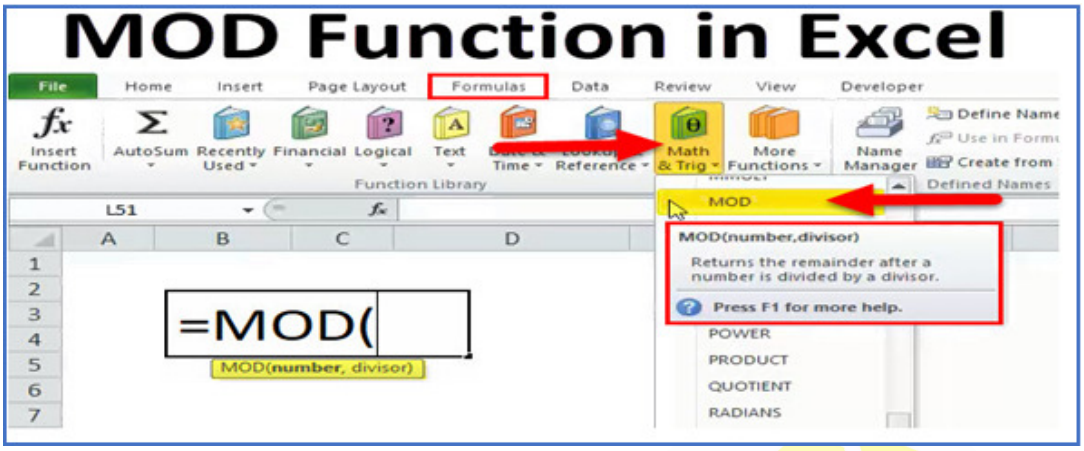

ASSIGNMENT

Dataset:

ID	Number1	Number2	MOD (Number1 ÷ Number2)	POWER (Number1 ^ Number2)	QUOTIENT (Number1 ÷ Number2)	FACT (Number2!)
201	25	4				
202	16	5				
203	50	7				
204	9	3				
205	12	6				
206	18	8				
207	30	9				
208	22	5				

Assignment Instructions

1. In the **MOD column**, calculate the remainder of Number1 ÷ Number2.
2. In the **POWER column**, calculate Number1 ^ Number2.
3. In the **QUOTIENT column**, calculate the integer part of Number1 ÷ Number2.
4. In the **FACT column**, calculate the factorial of Number2.