Average and Sum Formulas (For Quick Exam Revision)

1■■ Natural Numbers
- Sum of first n natural numbers: **n(n + 1) / 2**
- Average of first n natural numbers: **(n + 1) / 2**

Example: For first 40 natural numbers → Sum = 40×41/2 = 820, Average = 20.5

2■■ Even Numbers
- Sum of first n even numbers: **n(n + 1)**
- Average of first n even numbers: **n + 1**

Example: First 10 even numbers → Sum = 10×11 = 110, Average = 11

3■■ Odd Numbers
- Sum of first n odd numbers: **n^2**
- Average of first n odd numbers: **n**

Example: First 10 odd numbers → Sum = 10^2 = 100, Average = 10

4■■ Arithmetic Progression (A.P.)

If a series has a common difference 'd':
- Sum: **n/2 × (2a + (n − 1)d)**
- Average: **(First term + Last term) / 2**

Example: 3, 8, 13, 18, 23 → Average = (3 + 23)/2 = 13

5■■ Prime Numbers

No fixed formula — use divisibility rules to find primes, then apply normal average formula:
Average = (Sum of all primes) / (Number of primes)

Example: Primes between 30 and 50 → 31, 37, 41, 43, 47 → Average = 39.8

6■■ Key Tricks
- For consecutive numbers → (First + Last)/2
- For 1 to n → (n + 1)/2
- For even numbers → n + 1
- For odd numbers → n