The Factorial.

Factorial notation: Let n be a positive integer. Then, the continued product of first n natural numbers is called factorial n, to be denoted by $n!$ or $\lfloor n$. Also, we define 0 ! = 1.
When n is negative or a fraction, $n!$ is not defined.
Thus, $n! = n(n-1)(n-2)$ .....3.2.1.

Deduction: $n! = n(n-1)(n-2)(n-3)$ 3.2.1

$= n[(n-1)(n-2)(n-3).....3.2.1] = n[(n-1)!]$

Thus, $5! = 5 \times (4!), 3! = 3 \times (2!)$ and $2! = 2 \times (1!)$

Also, $1! = 1 \times (0!) \Rightarrow 0! = 1$.