$$n! = \prod_{i=1}^{n} i \tag{1}$$

$$f(n) = f(n-1) + f(n-2) \tag{2}$$

$$\sum_{k=1}^{n} k = 1 + 2 + \cdots + n$$

$$= \frac{n(n+1)}{2} \tag{3}$$