COTAS ASINTÓTICAS MÁS USUALES

1. $c \in \Theta(1), \forall c \in R^{\geq 0}$
2. $\sum_{i=1}^{n} i = n/2\,(n+1) \in \Theta(n^2)$
3. $\sum_{i=1}^{n} i^2 = n/3\,(n+1)(n+1/2) \in \Theta(n^3)$
4. $\sum_{i=1}^{n} i^k \in \Theta(n^{k+1}), \forall\, k \in N$
5. $\sum_{i=1}^{n} (n-i)^k \in \Theta(n^{k+1}), \forall\, k \in N$
6. $\sum_{i=1}^{n} r^i = (r^{n+1}-1)/(r-1) \in \Theta(r^n), r \neq 1$
7. $\sum_{i=1}^{n} 1/i = H_n = \ln n + \gamma + O(1/n) \in \Theta(\lg n)$ (serie harmónica)
8. $\sum_{i=1}^{n} (1/r^i) \in \Theta(1)$ si $r > 1$
9. $\sum_{i=0}^{n-1} H_i = n H_n - n \in \Theta(n \lg n)$
10. $\sum_{i=1}^{n} i H_i = n/2\,(n+1) H_{n+1} - n/4\,(n+1) \in \Theta(n^2 \lg n)$
11. $\sum_{i=1}^{n} \lg i \in \Theta(n \lg n)$
12. $\sum_{i=1}^{n} i\, 2^{i-1} = n2^n - 2^n + 1 \in \Theta(n2^n)$
13. $\sum_{i=1}^{n} i\, 2^{-i} = 2 - n/2^n - 2/2^n \in \Theta(1)$
14. $\sum_{i=1}^{n} i\, r^{i-1} \in \Theta(nr^n), \forall\, r > 1$
15. $\sum_{i=1}^{n} i\, r^{-i} \in \Theta(1), \forall\, r > 1$
16. $\sum_{i=1}^{n} 1/i! \in \Theta(1)$
17. $\sum_{i=1}^{n} \binom{n}{i} = 2^n \in \Theta(2^n)$
18. $n! = \sqrt{2\pi n}\left(\frac{n}{e}\right)^n \left(1 + \Theta\left(\frac{1}{n}\right)\right) \in \Theta\left(\sqrt{n}\left(\frac{n}{e}\right)^n\right)$