$$\frac{1}{3}(n+1)(n-2)-5 = \Theta(n^2)$$

$$c_1 n^2 \le \frac{1}{3}(n^2-n-2)-5 \le c_2 n^2$$

$c_2 = 1$

$$c_1 n^2 \le \frac{1}{3}n^2 - \frac{1}{3}n - \frac{2}{3} - 5 \le n^2$$

torta

torta

$$\frac{1}{3}n^2 - \frac{1}{3}n - \frac{17}{2} \le n^2$$

$\frac{1}{2}$

$$\frac{1}{3}n \le \frac{1}{4}\left(\frac{1}{3}n^2\right) \rightarrow 4 \le n$$

$$\frac{17}{2} \le \frac{1}{4}\left(\frac{1}{3}n^2\right) \rightarrow 6 \times 17 \le n^2$$

$$\sqrt{6 \times 17} \le n \iff 11 \le n$$

$11 \le n$

$n_0 = 11$

$$\frac{1}{3}n^2 - \frac{1}{3}n - \frac{17}{2} \ge \frac{1}{3}n^2 - \frac{1}{4}\left(\frac{1}{3}n^2\right) - \frac{1}{4}\left(\frac{1}{3}n^2\right)$$

$$n^2\left(\frac{1}{4 \cdot 3} - \frac{1}{12} - \frac{1}{12}\right)$$

$\frac{1}{6}n^2$ $\quad c_1 = \frac{1}{6}$ $\quad n \ge 11$

$\lg n! = \Omega(n \lg n)$

$n! \geq n^{\cdot}$ → $\sum$

$c(n) \lg n \leq \lg n!$

$\sum_{i=\frac{n}{2}+1}^{n} \lg(i) + \sum_{i=1}^{n/2} \lg(i)$

$n \leq n!$

$\lg n \leq \lg(n!)$

¿ $\frac{n}{2} \lg n \geq \sum_{i=\frac{n}{2}+1}^{n} \lg(i)$?

$$\binom{n}{9} = \left(\frac{n(n-1)(n-2)!}{9!\,(n-9)!} \right)$$

$$\left(\binom{n}{9} \right) =$$