



Dado: $f(n) = n^3 + q n^2 \log(n)$

$$g(n) = n^2 \log(n)$$

Comprobar:

1. $f(n) \in O(g(n))$

$$\frac{f(n)}{g(n)} = \frac{n^3 + q n^2 \log(n)}{n^2 \log(n)} = \frac{n^3}{n^2 \log(n)} + \frac{q n^2 \log(n)}{n^2 \log(n)} = \frac{n}{\log(n)} + q$$

$$f(n) \in O(g(n))$$

2. $f(n) \notin O(n^2)$

$$\frac{f(n)}{n^2} = n + q \log(n) \rightarrow \infty \text{ cuando } n \rightarrow \infty$$

$$f(n) \notin O(n^2) \leftarrow \text{correcto}$$

Fecha:

47
años

Comparar Relaciones

$$f(n) = 2^n$$

$$g(n) = 2^{2n} = (2^n)^2$$

Ver si:

1. $f(n) \in O(g(n))$

$$\frac{f(n)}{g(n)} = \frac{2^n}{2^{2n}} = 2^{-n} \rightarrow 0 \text{ cuando } n \rightarrow \infty$$

$$f(n) \in O(g(n))$$

2. $g(n) \in O(f(n))$

$$\frac{g(n)}{f(n)} = \frac{2^{2n}}{2^n} = 2^n \rightarrow \infty$$

$$g(n) \not\in O(f(n))$$