$$f(n) = O(g(n)) \Rightarrow \exists\, c_1, n_0 \text{ s.t. } f(n) \le c_1 \cdot g(n) \quad n_0 \le n$$ (1)

$$f^c(n) \le (c_1 g(n))^c$$

$$\log(f^c(n)) \le \log(c_1 g(n))^c$$

log συν Αυξουσα

$$\log(f^c(n)) \le c \log(c_1 \cdot g(n))$$

$$\log u^{\alpha} = \alpha \log u$$

$$\log(f^c(n)) \le c \log(g(n)) + \cancel{c \log c_1}$$

$$\log(f^c(n)) = O(\log(g(n)) + \cancel{O(1)})$$

$$\log(f^c(n)) = O(\log(g(n)))$$

Αν $f = O(g + u) \Rightarrow f = O(g)$
u σταθ.

$$\log(f^c(n)) \le c \log(g(n))$$

$$f(n) \log(f^c(n)) \le c \log(g(n)) \cdot g(n)$$

κατα μελη με (1)

$$f(n) \log(f^c(n)) = O(\log(g(n)) g(n))$$