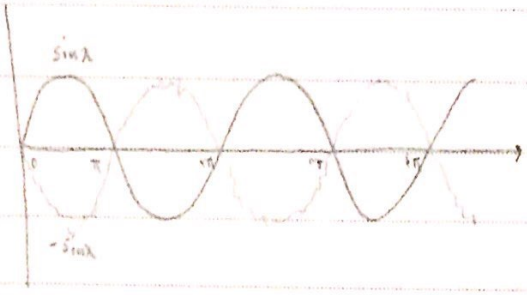
Subject:

Year. Month. Date. ( )

ریاضیات گسسته ۹۸۱۲۰۴۱

بودن یا نبودن مسئله این است!



$g(x) = \sin x$ $\quad h(x) = -\sin x$

$g \in O(h)$ تعریف خلف $\quad \Leftarrow \quad \exists c \geq 0,\ n_0 \geq 1 \quad \forall n \geq n_0 \quad g(n) \leq c.h(n)$

$n = 2n_0\pi + \frac{\pi}{2} \geq n_0 \Rightarrow g(n) = \sin(2n_0\pi + \frac{\pi}{2}) = \sin(\frac{\pi}{2}) = 1$

$c.h(n) = -c.\sin(2n_0\pi + \frac{\pi}{2}) = -c$

$\forall c: 1 > -c$

↳ فرض خلف باطل

$h \in O(g)$ تعریف خلف $\quad \Leftarrow \quad \exists c \geq 0,\ n_0 \geq 1 \quad \forall n \geq n_0 \quad h(n) \leq c.g(n)$

$n = 2n_0\pi - \frac{\pi}{2} \geq n_0 \Rightarrow h(n) = -\sin(2n_0\pi - \frac{\pi}{2}) = -\sin(-\frac{\pi}{2}) = 1$

$c.g(n) = c.\sin(2n_0\pi - \frac{\pi}{2}) = -c$

$\forall c: 1 > -c$

↳ فرض خلف باطل