Doubt Clearing Session

Complete Course on Algorithm for GATE - CS & IT

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T/F

a) $2^{n+1} = O(2^n)$ ⟹ $2^{n+1} \le c \cdot 2^n$

$2 \cdot 2^n \le c \cdot 2^n$

$2 \cdot 2^n \le 3 \cdot 2^n$

b) ~~$2^{2n} = O(2^n)$~~

c) ~~$2^{2n} = \Theta(2^n)$~~

$2^{2n} \le c \cdot 2^n$

d) $2^n = \Theta(2^{n+1})$

$2^{n+n} \le c \cdot 2^n$

$2^n \cdot 2^n \le c \cdot 2^n$

T/F

$O, \Omega, \Theta, \cancel{<}, \cancel{>}$ $\quad\quad$ $\cancel{o}, \cancel{\omega}, \cancel{\Theta}, \cancel{<}, \cancel{>}$

(a) ✓ $f(n) = O(f(n))$

(b) ✗ $f(n) = O((f(n))^2)$ $\quad$ $f(n)^{1/n}$ $\quad$ $(f(n))^2$

$f(n) \geq 1, n \geq 1 \Rightarrow$ incorrect

$f(n) \leq 1, n \geq 1 \Rightarrow$ correct

(c) $f(n) = O\left(\frac{f(n)}{2}\right)$

$\cancel{o}$ $\cancel{\omega}$ $\cancel{\Theta}$ $\cancel{\leq}$ ✓

(d) ✗ $f(n) = O(f(\frac{n}{2}))$

2^n $\quad$ $2^{n/2}$ $\quad$ 2^{2n} $\quad$ $n/2$ $\quad$ 2^n $\quad$ 3^n $\quad$ $3^{n/2}$ $\quad$ $O(\,)$

$2^n \leq c \cdot 2^{n/2}$

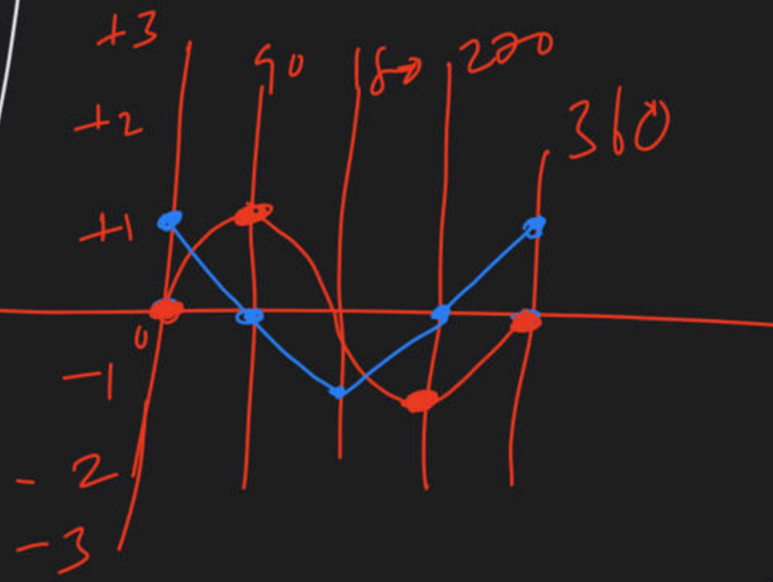
$\Downarrow$

$2^{n/2} \cdot 2^{n/2} \leq c \cdot 2^{n/2}$

T/F

$f(x) = x$ (0, 1, $1 + \sin x$)

$g(x) = x$ ($\cos x$)



$\cos 330 = 0.86$

$\sin 330 =$ (-0.5, +1)

0.5

$f(x)$ & $g(x)$

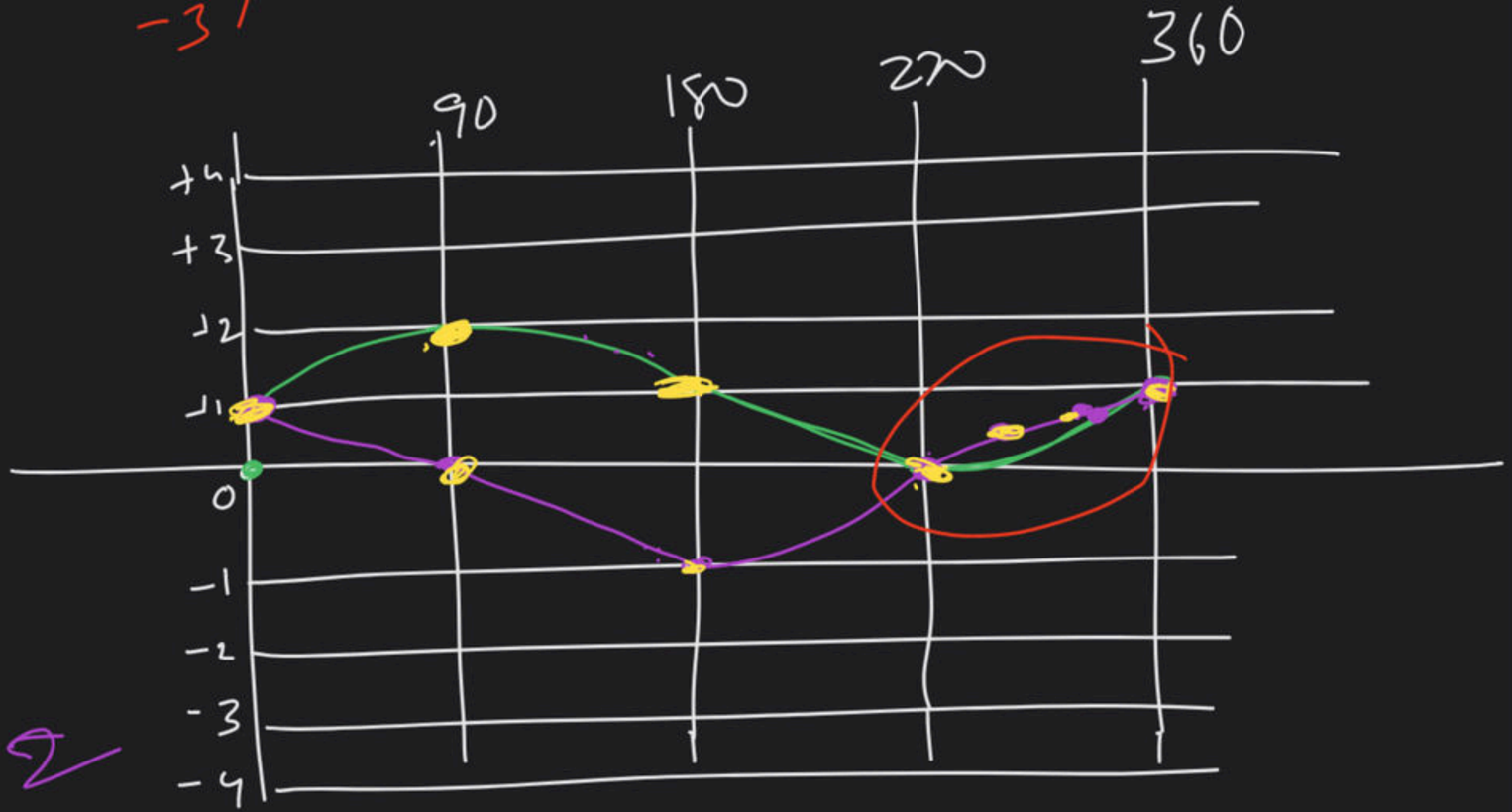
What is it relm?

not comparable.

$\cos 300 = 0.5$

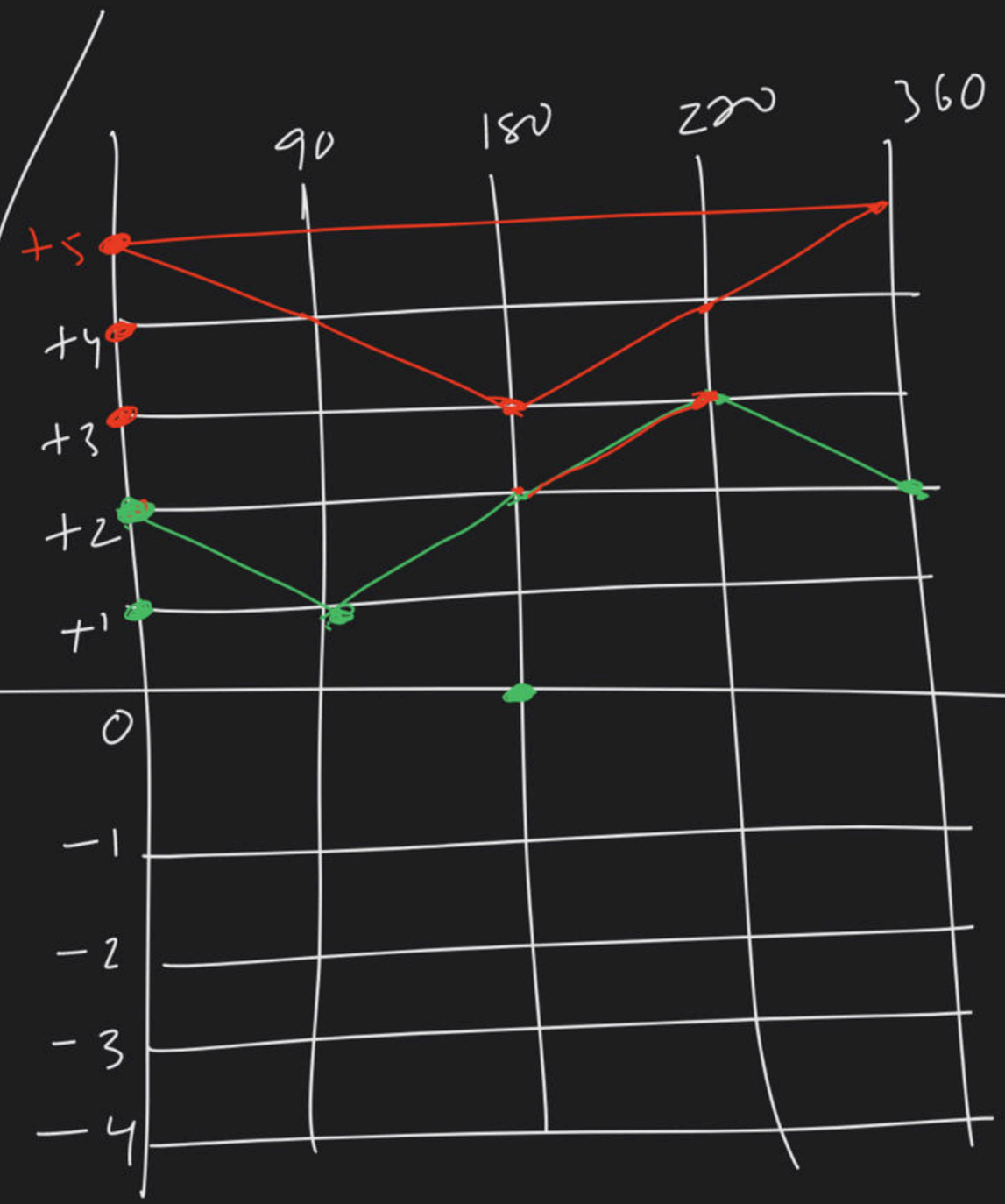
$\sin 300 =$ (-0.8, +1)

0.9



$f(n) = n^{2-\sin n}$

$g(n) = n^{4+\cos n}$



$f(n) = O(g(n))$

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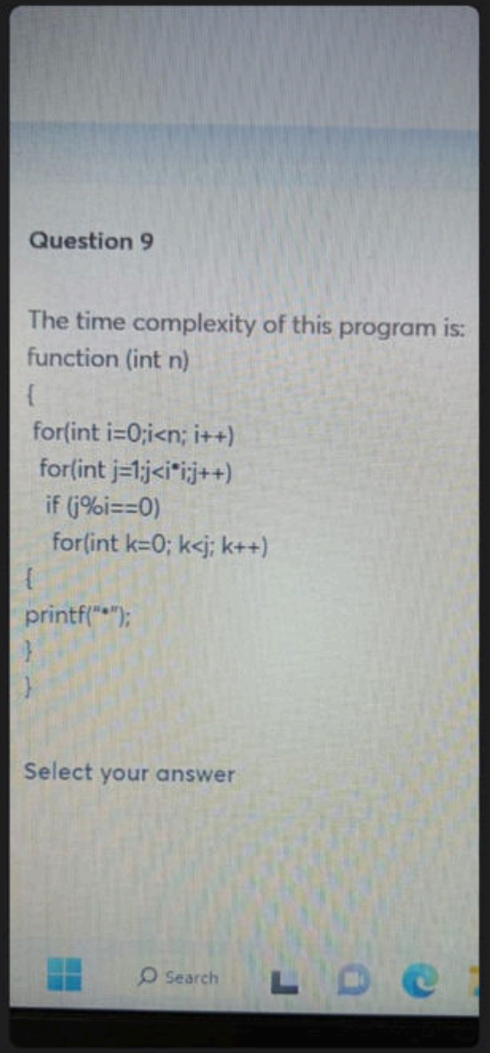
▲ 1 • Asked by Akash

Please help me with this doubt



Question 9

The time complexity of this program is:

```
function (int n)
{
 for(int i=0;i<n; i++)
  for(int j=1;j<i*i;j++)
   if (j%i==0)
    for(int k=0; k<j; k++)
{
printf("*");
}
}
```

Select your answer

Search