

CS200 Quiz 6: Complexity, Recurrences (10/2/08)

1. [Circle one] What is the smallest Big-O for:
 $f(n) = 1 + 4 + 7 + \dots + (3n + 1)$
 - a. $\log_2 n$
 - b. n
 - c. n^2**
 - d. 2^n
2. [Circle one] For what value of C, is
 $f(x) = 3\log x$ $O(x)$ given $k=1$?
 - a. 0
 - b. 1
 - c. 2 either c or d is correct**
 - d. 3**
3. [Circle one] What is a_3 of the
recurrence: $a_n = a_{n-1}^2, a_1 = 2$
 - a. 2
 - b. 3
 - c. 8
 - d. 16**
4. [Circle all that are true] The terms in the
equation $f(n) = af(n/b) + g(n)$ mean:
 - a. a is the number of operations done to
combine solutions
 - b. b is the number of subproblems formed at
each iteration**
 - c. g(n) is total number of operations done at
each iteration
 - d. n/b is the number of subproblems formed
at each iteration
5. [Circle all that are true]
 - a. Worst case of an algorithm means the
largest number of operations to solve the
given problem on input of specified size.**
 - b. Computational complexity analysis only
ever considers time.
 - c. Average case analysis is more difficult
because you need to know how the
algorithm is to be used.**
 - d. An algorithm has polynomial complexity if
it is $\Theta(n^b), b \geq 1$**