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CS-2413

Homework 1

1. A. 15

B. 2n-1

1. A. 2n ≥ 84,400,000,000

Log2 84,400,000,000 ≥ n

After 37 days

B. 37

1. Log220.694\*N ; for N = 200

Log220.694\*200

0.694\*200

138.8

138 bits

1. There are two cases here:
2. The last tile is covered in a 1x1 block, in which case there are as many possible combinations as when the area was 1x(k-1)
3. The last two tiles are covered in a 1x2 block, in which case there are as many possible combinations as when the area was 1x(k-2)

So the total combinations would be the sum of these two cases, from the last case, when the area was 1x(k-1), and from two cases ago, when the area was 1x(k-2). This is to say that for any value of k, the function would be:

Possibilities(k) = Possibilitiesk-1 + Possibilitiesk-2

In terms of a Fibonacci number, where k is the length of the floor, this can be expressed as: Possibilities(k) = Fibonaccik+1

1. A. f = Ω (g)

B. f = O(g)

C. f = O(g)

D. f = Ω (g)

E. f = Ω (g)

F. f = Θ(g)

G. f = Θ(g)

H. f = O(g)

I. f = O(g)

J. f = Θ(g)

1. A. and Θ(N2)

B. and Θ(log(N))

1. Log(N)