Name ____Solutions____ Discrete I, Quiz 18

1) Let $\{a_n\}_{n=0}^{\infty}$ be the sequence defined by $a_n = 2n + 1$. Define a new sequence $\{b_k\}_{k=0}^{\infty}$ by taking every other term in the first sequence. That is, the new sequence is given by:

$$a_0, a_2, a_4, a_6, \dots$$

Find an explicit formula for b_k.

Relating a_n and b_k we see that:

$$b_0 = a_0$$
$$b_1 = a_2$$
$$b_2 = a_4$$
$$b_3 = a_6$$

Using that to relate n and k we see that $2k = n$. Plugging this into the formula we see that:

$$b_k = a_n = a_{2k} = 2(2k) + 1 = 4k + 1$$

2) Concatenate the string "`abcd`" with the string "`gogg`".

"`abcdgogg`"

3) Does your answer to #2 include the string "`dog`" as a substring?

No. There's only one `d`, so the substring starting with `d` would have to be the substring "`dog`". It is "`dgo`" which is not "`dog`".