

# string length question

**Source:** <http://sci.tech-archive.net/Archive/sci.math/2004-09/4849.html>

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**Date:** 09/21/04

Date: 21 Sep 2004 04:32:45 GMT

We have that string A can go into one of two forms  
either  $A \rightarrow BC$  and terminates or  $A \rightarrow ADA$  and D is terminal, but each of  
those A's can break up into either BC or ADA.

what is the expected length of string A?

the standard approach which i took fails, since i said let a be the expected  
length.

in this case the answer would be the solution of  $a = .5*2 + .5(2a + 1)$  but this  
leads to  $3/2 = 0$ .

any help would be appreciated.

thanks in advance