

Day 3, #5

$$C(n) = \begin{cases} 1 & n=0 \\ k & n=1 \\ 3C(n-1) + 10C(n-2) & n>1 \end{cases}$$

1, k, 3k+10, ...

Guess  $k=\pi \rightarrow 1, \pi, 3\pi+10, \dots$  ← NOT geometric!  
 $k=2 \rightarrow 1, 2, 16, \dots$  16 is not  $2 \cdot 2$  so not geometric

Test:  $k^2 = 3k + 10 \Rightarrow k=5$  or  $k=-2$