Assume that a person invests \$3000 at 12% compounded annually. Let A_n be the amount of money at the end of n years.

1. Find A_1, A_2, A_3, and a recurrence relation that relates A_{n+1} to A_n for $n \in \mathbb{N}$.
2. Find A_n for all $n \in \mathbb{N}$.
3. How long will it take to double the initial investment?