1. Recall that the Fibonacci sequence begins

\[ 0, \ 1, \ 1, \ 2, \ 3, \ 5, \ 8, \ 13, \ 21, \ 34, \ 55, \ \ldots. \]

Find a rational number \( \frac{m}{n} \) with \( n < 10000 \) with decimal expansion beginning

\[ 0.01 \ 01 \ 02 \ 03 \ 05 \ 08 \ 13 \ 21 \ 34 \ 55 \ \ldots. \]

2. Alice wishes to spend the first part of her 20-day vacation at home and the last part visiting her cousin, spending at least three days with her cousin. While she is at home, she wants to reserve one day for doing homework. How many ways can she do this?