Homework Problems from Monday, February 28

(Complete Induction)

Work out the following problems on recursively defined sequences using complete induction.

1. Let $a_1 = 2$, $a_2 = 4$, and $a_{n+1} = 7a_n - 10a_{n-1}$ for all $n \geqslant 2$. Conjecture a general formula for a_n and then prove your result.
2. Let $a_1 = 3$, $a_2 = 4$, and $a_{n+1} = (2a_n + a_{n-1})/3$ for all $n \geqslant 2$. Prove that for each $n \in \mathbb{N}$, $3 \leqslant a_n \leqslant 4$.