1. Prove the statement below using induction.

   The expression $n^3 + 5n + 6$ is divisible by 3 for every $n \in \mathbb{N}$.

2. Can you think of any **other** ways one might prove the statement above?

3. Proposition: For every $n \in \mathbb{N}$, every set of $n$ horses has the same color.

4. Proof by **Strong** Induction

5. Proposition: Let $a_n$ be the sequence such that $a_0 = 1$, $a_1 = 4$ and $a_n = 3a_{n-1} - 2a_{n-2}$. Then, for every $n \in \mathbb{N} \cup \{0\}$, $a_n = 3 \cdot 2^n - 2$.

6. Proposition: Every integer $n > 1$ has a prime factorization.

(Bonus:) Any postage, $n$, can be made from 3-cent and 7-cent stamps provided $n \in \mathbb{N}$ and $n > 12$.