Proof By Contradiction

Use a proof by contradiction to show:

\[ \neg \exists x, y \in \mathbb{Z}: x^2 = 4y + 2 \]
Proof By Strong Induction

Prove it takes $n - 1$ breaks to reduce an $n$-square chocolate bar to $n$ individual pieces.
Prove correct: (why strong induction needed?)

ReverseString(s)

Input : String s
Output: A string whose characters are the reverse of s

// Base Case
1 if length(s) == 1 then
2    return s;
3 end

// Recursive step
4 mid = [length(s)/2];
5 return ReverseString(s[mid + 1 : end]) + ReverseString(s[1 : mid]);