Recurrence relations

Recurrence relations are generally functions defined recursively:

1. $g(1) = 3$ and $g(n) = 3 + g(n-1)$ for $n \geq 2$
2. $f(1) = f(2) = 1$ and $f(n) = f(n-1) + f(n-2)$ for $n \geq 3$.

Note that $f(n)$ depends on $f(n-1)$ and $f(n-2)$.

Hence you *must* use strong induction for anything you want to prove about $f(n)$, but you *could* have used weak induction for $g(n)$.

Strong induction is always valid, so practice using it.