314   Let x, y, and n be natural variables. Let f: $nat{\rightarrow}nat$ be a function. Simplify

frame x· **new** y, m: nat· m:= n. $x' = f\,m$ ∧ $y' = f\,(m{+}1)$

After trying the question, scroll down to the solution.

§   **frame** x· **new** y, m: *nat*· $m := n$. $x' = f\,m \;\wedge\; y' = f\,(m+1)$ Substitution Law

$=$ **frame** x· **new** y, m: *nat*· $x' = f\,n \;\wedge\; y' = f\,(n+1)$ expand **var**

$=$ **frame** x· $\exists y, m, y', m'$: *nat*· $x' = f\,n \;\wedge\; y' = f\,(n+1)$ discard unused variables

$=$ **frame** x· $\exists y'$: *nat*· $x' = f\,n \;\wedge\; y' = f\,(n+1)$ one-point

$=$ **frame** x· $x' = f\,n$ expand **frame**

$=$ $x' = f\,n \;\wedge\; y' = y \;\wedge\; n' = n$ assignment

$=$ $x := f\,n$