Proving $f(n) \geq 2n$ for $n \geq 8$

Recall that $N \geq 10$ is arbitrary.

The Inductive Hypothesis is

- $P(k) : f(k) \geq 2k$ for all integers k between 8 and N.

The Inductive Step is to show that
$$[P(8) \wedge P(9) \wedge \ldots \wedge P(N)] \rightarrow P(N+1)$$

We write down what $P(N+1)$ asserts to help us come up with the proof!

$P(N+1)$ asserts that $f(N+1) \geq 2(N+1)$

In other words, we want to use the I.H. to prove that
$f(N+1) \geq 2(N+1)$.