Consider the Fibonacci function, F(n) (see Proposition 3.20). Show by induction that $F(n)4$ is $\Omega((3/2)n)$.

Lets find c and n_0 such that $F(n) \geq c(\frac{3}{2})^n$

for $c = \frac{4}{9}$ and $n_0 = 1$ everything works great

Inductive Hippotesis:

$F(k) \geq c(\frac{3}{2})^k$

$= F(k+1) + F(k-1)$

$\geq c(\frac{3}{2})^k + c(\frac{3}{2})^{k-1}$

$= c(\frac{3}{2})^{k-1} \cdot \frac{3}{2} + c(\frac{3}{2})^{k-1}$

$= c(\frac{3}{2})^{k-1}(\frac{3}{2} + 1)$

$> c(\frac{3}{2})^{k-1}(\frac{3}{2})^2$, since $\frac{5}{2} > \frac{9}{4}$

$= c(\frac{3}{2})^{k+1}$

http://www.simonfoucher.com/McGill/COMP250/Lectures/Math/lecture13.pdf