18.014 pset 2

10 Show that we have the following equations for any p, q

$h(0,p,q) = q+1$
$h(1,p,q) = h(0,p,h(1,p,q-1)) = h(1,p,q-1)+1 = ... = h(1,p,0)+q = p+q$
$h(2,p,q) = h(1,p,h(2,p,q-1)) = p + h(2,p,q-1) = ... = pq$
$h(3,p,q) = h(2,p,h(3,p,q-1)) = p * h(3,p,q-1) = ...p^q$
$h(4,p,q) = h(3,p,h(4,p,q-1)) = p^{h(4,p,q-1)} = p^{p^{p^{\cdots}}}$

11 Define a function $a(n) = h(n,n,n)$