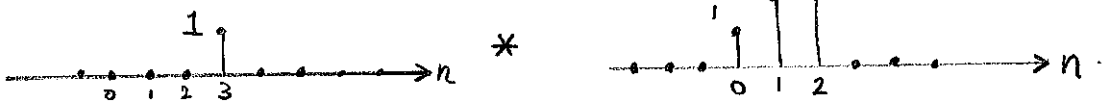
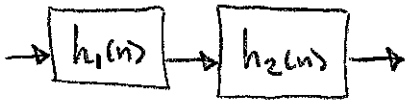
EE 3054 - Quiz 2 - Spring 2012

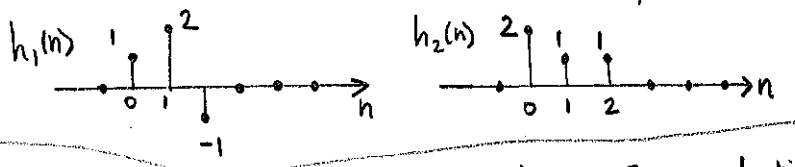
The problems are equally weighted

① Sketch the convolution of:



② 

2 LTI systems are connected in series with impulse responses h_1 & h_2.

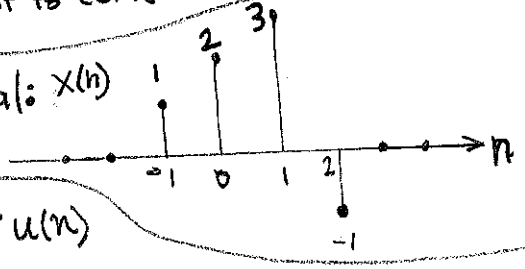


Find the impulse response of (sketch) the total system.

③ <u>sketch</u> and give a formula. $x(n) = u(n) * u(n)$ [convolution of 2 step functions]

④ Find $f(n) * g(n)$ where $f(n) = \left(\frac{1}{2}\right)^n u(n)$, $g(n) = \left(\frac{1}{4}\right)^n u(n)$. $x(n) = f(n) * g(n)$

[no sketch nec., just formula. You may want to come back to this one.]

⑤ Write the z-transform $X(z)$ of the signal: 

⑥ Write the z-transform $X(z)$ of $x(n) = 5\left(\frac{2}{3}\right)^n u(n)$

⑦ $X(z) = 3 + 2z^{-1} + 4z^{-2}$. Sketch $x(n)$

⑧ Let $G(z) = z^{-3} X(z)$ from ⑦. Sketch $g(n)$.

⑨ Let $G(z) = X(1/z)$ " " .

⑩ $G(z) = X(-z)$ " " .