In-class exercise: convolution

Compute the convolution of $h_2[n]$ and $x_2[n]$ given below.

![Graphs of h2[n] and x2[n]]
In-class exercise: convolution

The sequence $x_4[n]$ is the input to an LTI system with the impulse response $h_4[n]$. $x_4[n]$ and $h_4[n]$ are defined below:

$$x_4[n] = \left( \frac{1}{2} \right)^n u[n]$$

$$h_4[n] = \frac{1}{3} (\delta[n + 1] + \delta[n] + \delta[n - 1])$$

Sketch $x_4[n]$ and $h_4[n]$, then determine the output of the system, $y_4[n]$. 