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Signal Processing Tutorial: Discrete-Time Convolution Examples (Part 1 - Intro)

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Signal Processing Tutorial: Discrete-Time Convolution Examples (Part 1 - Intro)

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- Arbitrary input expressed as a weighted sum of time-shifted impulses
- For LTI system, output must be a weighted sum of time-shifted impulse **responses**

$\delta[n]$
 $\delta_k[n-k]$
 $x[n] = \sum_{k=-\infty}^{\infty} x[k] \delta[n-k]$

Arbitrary Input

LTI System Described by Impulse Response $h[n]$

Discrete-time System

$y[n] = h[n]$
 $y_k[n] = h[n-k]$

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