

Unit 3 Lesson 5

Recall that for $u(t)$ being the box function,

$$u'(t) = \delta(t)$$

We call $x(0^-) = \lim_{t \rightarrow 0^-} x(t)$ and $\dot{x}(0^-) = \lim_{t \rightarrow 0^-} (\dot{x}(t))$ the ^{pre} initial conditions
and $x(0^+) = \lim_{t \rightarrow 0^+} x(t)$, $\dot{x}(0^+) = \lim_{t \rightarrow 0^+} (\dot{x}(t))$ the post initial conditions.

Example Problem

~~We must find~~ In this case $V(t)$ is continuous, thus we have

$$\dot{V}(0^+) = U(0^+) = 1.$$