

Table 3-1 Voltage and current relationships

unknown	R	C	L
i	$\frac{v}{R}$	$C \frac{dv}{dt}$	$\frac{1}{L} \int_0^t v dt + I_o$
v	$i \times R$	$\frac{1}{C} \int_0^t i dt + V_o$	$L \frac{di}{dt}$

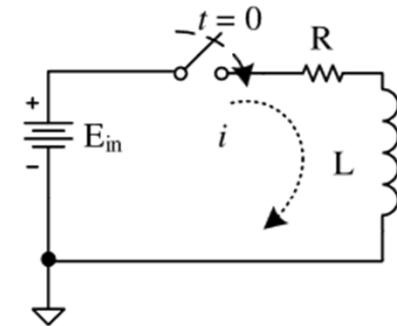


Figure 3-24 RL circuit with a step

$$i' = -\frac{R}{L}i + \frac{E_{in}}{L}$$

The TI-Nspire solution is shown in Figure 3-25.

The image shows the TI-Nspire Scratchpad interface. The top menu bar includes icons for document, calculator, and scratchpad, followed by "Scratchpad" and "RAD". Below the menu is a command input field and a result display area. The command entered is `deSolve($i' = \frac{-r}{l} \cdot i + \frac{v}{l}$ and $i(0) = 0, t, i$)`. The resulting solution is displayed as $i = \frac{v}{r} - \frac{e^{\frac{-rt}{l}} \cdot v}{r}$.

$$i' = -\frac{R}{L} i + \frac{E_{in}}{L}$$

$$v_R=$$

$$i' = -\frac{R}{L} i + \frac{E_{in}}{L}$$

$$\mathfrak{v}_L=$$