

$$\mathcal{L}\{f'(t)\} = sF(s) - f(0).$$

escalón
Heaviside
rampa.

$$\left. \begin{aligned} \mathcal{L}\{u(t-a)\} &= \frac{e^{-as}}{s} \\ \mathcal{L}\{r(t-a)\} &= \frac{e^{-as}}{s^2} \end{aligned} \right\} f(0)=0$$

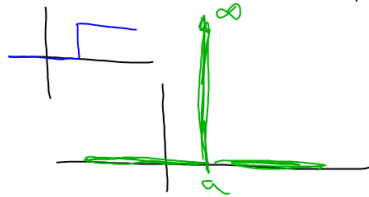
$$= s \left(\frac{e^{-as}}{s^2} \right) - (0)$$

$$\mathcal{L}\{u(t-a)\} = \frac{e^{-as}}{s}$$

$$\mathcal{L}\{r(t-a)\} = s \left(\frac{e^{-as}}{s^2} \right) - f(0)$$

$$\mathcal{L}\{r(t-a)\} = s \mathcal{L}\{u(t-a)\} - f(0)$$

$$\frac{d r(t-a)}{dt} = \mathcal{L}\{u(t-a)\}.$$



$$\delta(t-a) = \begin{cases} 0 & ; t \neq a \\ \int_{-\infty}^{\infty} \delta(t-a) dt = 1 \end{cases}$$

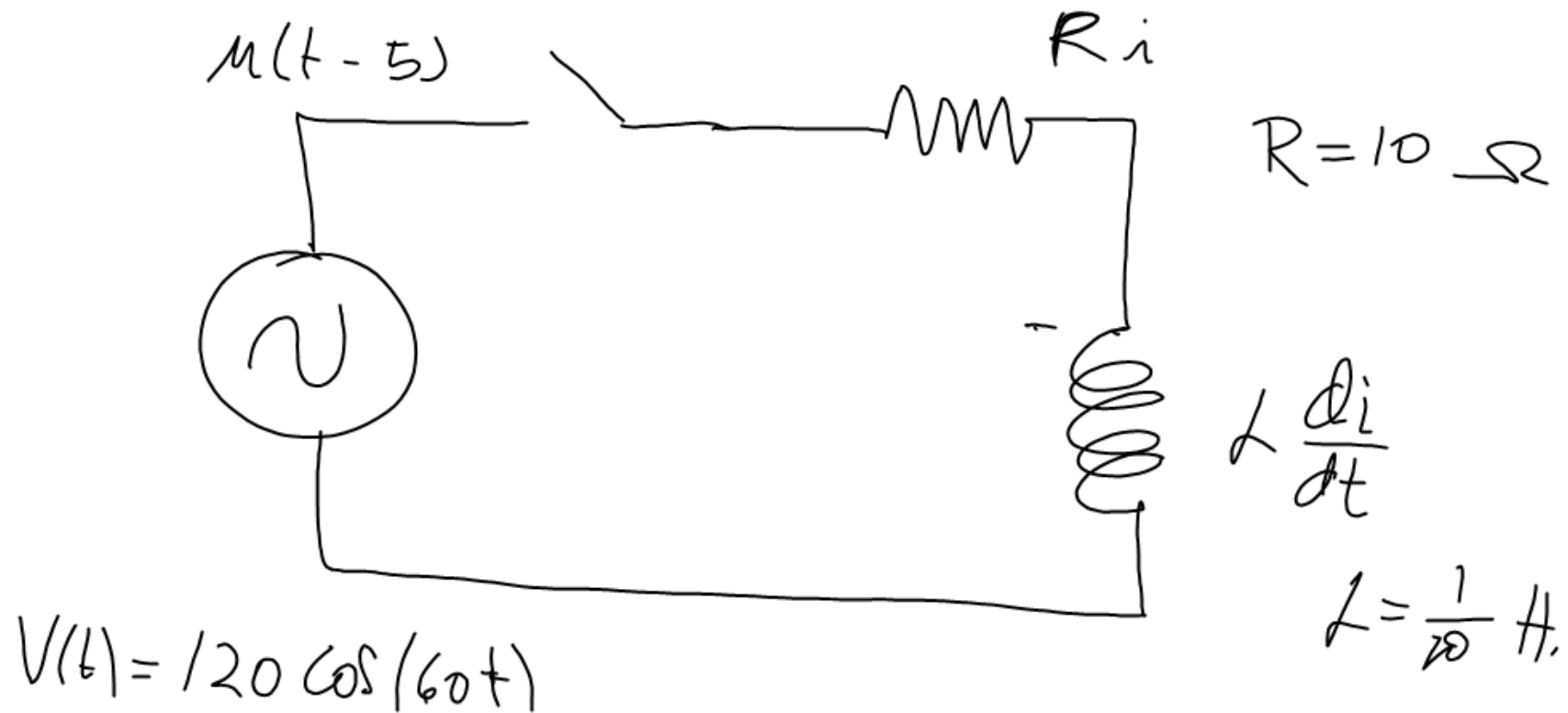
Dirac

$$\mathcal{L}\{u(t-a)\} = \frac{e^{-as}}{s}$$

$$\mathcal{L}\{u'(t-a)\} = s \left(\frac{e^{-as}}{s} \right) - (0)$$

$$= e^{-as}$$

$$\mathcal{L}\{u'(t-a)\} = \mathcal{L}\{\delta(t-a)\}.$$



$$\frac{1}{10} \frac{di}{dt} + 10i = u(t-5) 120 \cos(60t). \quad V(0) = 0$$