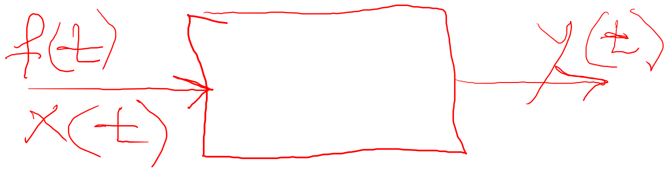


$f(t) = 1(t)\ ;\ t \geq \phi$ [unit step function]

$$\mathcal{L}[1(t)] = \int_0^\infty 1\, e^{-st}\, dt$$

$$= \int_0^\infty e^{-st}\, dt \times \frac{-s}{-s}$$

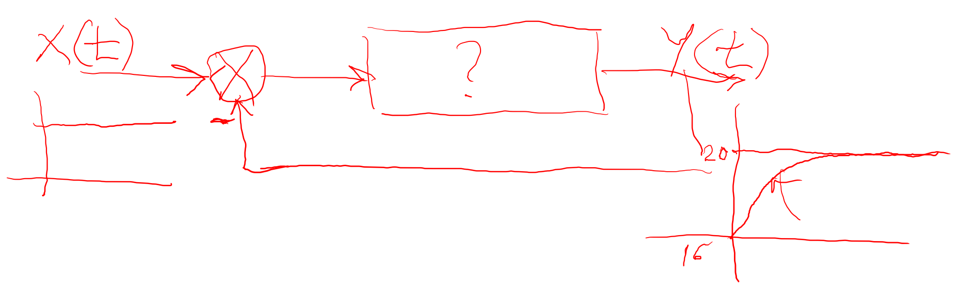
$$= \frac{-1}{s}\, e^{-st}\Big|_0^\infty =$$

$$= \frac{-1}{s}\left[e^{-s\infty} - e^{-s(\phi)}\right]$$

$$= \frac{-1}{s}\left[\cancel{\frac{1}{e^{s\infty}}} - \underbrace{e^{\phi}}_{1}\right]$$

$$\mathcal{L}[1] = \frac{-1}{s}[-1] = \frac{1}{s}$$

$$\mathcal{L}[A] = \frac{A}{s}$$



$$\boxed{\begin{array}{l} f(t) = t \\ F(s) = \frac{1}{s^2} \end{array}}$$