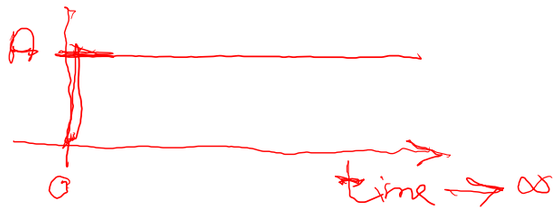
$f(t)$ = step Function

$f(t) = A$




$A = 1$ Unit step Function

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

$$= A\left[\frac{-s}{-s}\,e^{-st}\,dt\right]_0^\infty$$

$$= \frac{A}{-s}\left[e^{-st}\right]_0^\infty$$

$$= -\frac{A}{s}\left[e^{-s(\infty)} - e^{-s(0)}\right]$$

$e^{-s(\infty)}$ → Zero

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

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$u(t) = 1 \xrightarrow{F(s)} \frac{1}{s}$

$= \delta(t) \rightarrow 1$

$= e^{-at} \rightarrow \frac{1}{s+a}$