6.4. 29 $tx'' + (t-2)x' + x = 0$ $\mathcal{L}\{x\} = \bar{x}$

$\mathcal{L}\{x''\} = s^2\bar{x} - x$ $x = x(0)$

$\mathcal{L}\{x'\} = s\bar{x}$

$\mathcal{L}\{tx''\} = -\frac{d}{ds}(s^2\bar{x} - x) = -s^2\bar{x}' - 2s\bar{x}$

~~$\mathcal{L}\{-tx'\} = -s\bar{x} + x$~~

~~$\mathcal{L}\{tx\} = -\bar{x}'$~~

~~$+s^2\bar{x}' - 2s\bar{x} + (t-2)(s\bar{x}' + \bar{x}) - x$~~

$\mathcal{L}\{tx'\} = s\bar{x}' + \bar{x}$

$\mathcal{L}\{-2x'\} = -2\bar{x}s + x$

$-s^2\bar{x}' - 2s\bar{x} + s\bar{x}' + \bar{x} - 2\bar{x}s + x + \bar{x} = 0$

$-s^2\bar{x}' + s\bar{x}' - 2s\bar{x} + \bar{x} - 2\bar{x}s + \bar{x} = 0$

$-s^2\bar{x}' + s\bar{x}' - 4s\bar{x} + 2\bar{x}$

$s^2\bar{x}' + s\bar{x}' = 4s\bar{x} - 2\bar{x}$

$\frac{\bar{x}'}{\bar{x}} = \frac{4s-2}{s^2+s}$