5.05*

tisdag 13 februari 2024 17:23

s. 61 $\delta(t)\theta(t)$ saknar betydelse

$$y''(t) + 2y'(t) + 2y = \delta(t), \quad -\infty < t < +\infty$$

$Y = \mathcal{L}(y)$ $\quad sY = \mathcal{L}(y')$ $\quad s^2Y = \mathcal{L}(y'')$

$$y''(t) + 2y'(t) + 2y = \delta(t) \iff$$

$$\iff s^2Y + 2sY + 2Y = 1 \iff$$

$$\iff Y(s) = \frac{1}{(s+1)^2 + 1}$$

$$y(t) = e^{-t}\sin(t)\theta(t) \qquad -\infty < t < \infty$$