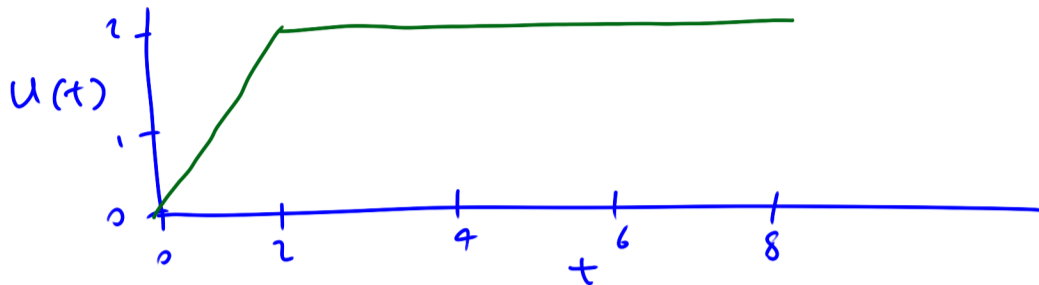


RW 15, 26

$$H(s) = \frac{4}{2s+1}$$

$$y^{(i)}(0) = 0 \quad \forall i$$



find  $y(t)$ ,  $y(\infty)$

$$t \leq 2 \quad u(t) = t = u_r(t) = \mathcal{L}^{-1}\left(\frac{1}{s^2}\right)$$

$$Y(s) = \frac{4}{2s+1} \frac{1}{s^2} = \frac{a}{2s+1} + \frac{b}{s^2}$$

$$y(t) = 4t + 8e^{-t/2} - 8$$

$$y(2) = 4(2) + 8e^{-2/2} - 8 = 8e^{-1}$$

$$t \geq 2 \quad u(t) = 2 = 2u_s(t) = \mathcal{L}^{-1}\left(\frac{2}{s}\right)$$

$$Y(s) = \frac{4}{2s+1} \frac{2}{s}$$

$$(2s+1)Y(s) = 4\frac{2}{s}$$

$$2sY(s) + Y(s) = 4\frac{2}{s}$$

$$2sY(s) + y(2) + Y(s) = 4\frac{2}{s}$$