

$T_2 \leq t < T$ :  $V_{in} = 1$ . Similarly,

$$V_C = 1 + Ke^{-t/RC}, \quad V_C\left(\frac{T}{2}\right) = 1 + Ke^{-T/2RC} = 3$$

$$\Rightarrow K = 2e^{T/2RC}, \quad V_C = 1 + 2e^{(T/2-t)/RC}$$

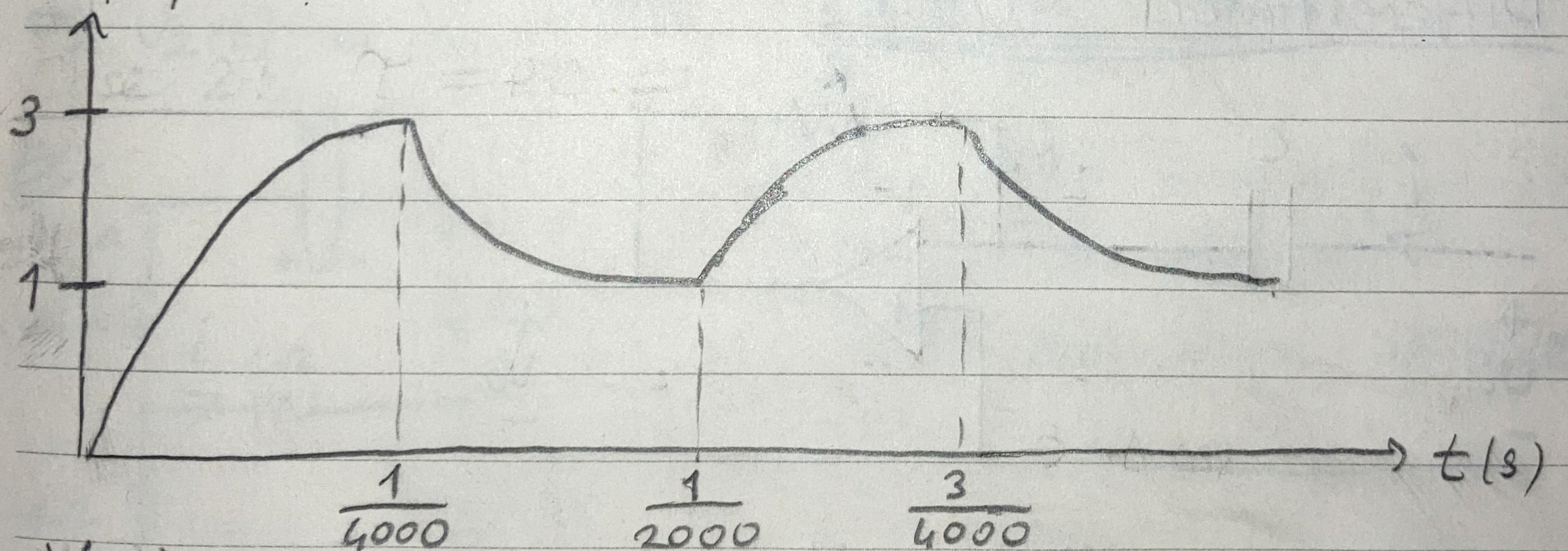
$$V_R = V_{in} - V_C = -2e^{(T/2-t)/RC}$$

(At  $t = \frac{T}{2}$ , we can assume that the circuit is in steady state, since  $t \gg \tau$ .)

Case 1:	$\tau = RC = 15.5 \cdot 10^{-6} s$
Case 2:	$\tau = RC = 3.3 \cdot 10^{-5} s$
Case 3:	$\tau = RC = 68 \cdot 10^{-5} s$

The graphs below hold for Case 1 & Case 2:

$V_C(t)$



$V_R(t)$

