$\underline{T/2 \leq t < T:}$ $V_{in} = 1$. 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 $t \gg \tau$.)

$\boxed{\text{Case 1:}}$ $\tau = RC = 15.5 \cdot 10^{-6}$ s

$\boxed{\text{Case 2:}}$ $\tau = RC = 3.3 \cdot 10^{-5}$ s

$\boxed{\text{Case 3:}}$ $\tau = RC = 68 \cdot 10^{-5}$ s.

The graphs below hold for Case 1 & Case 2: