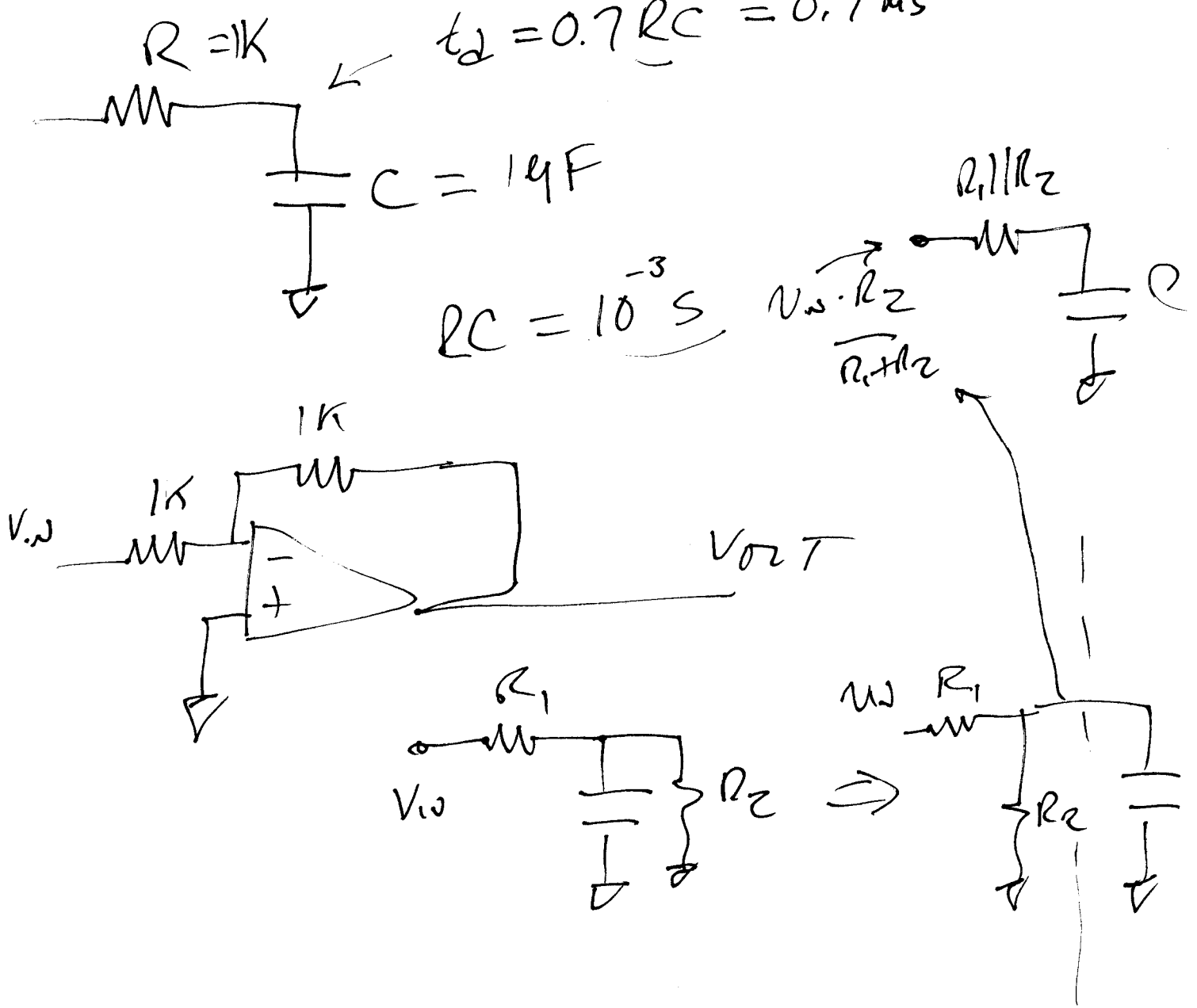
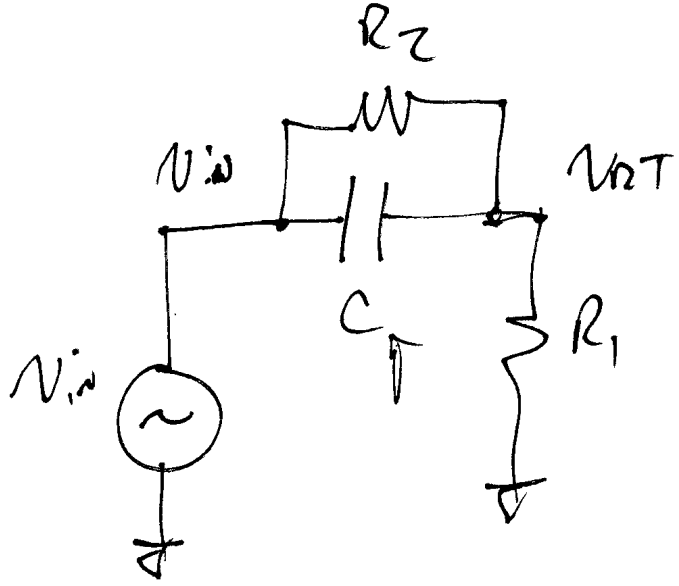
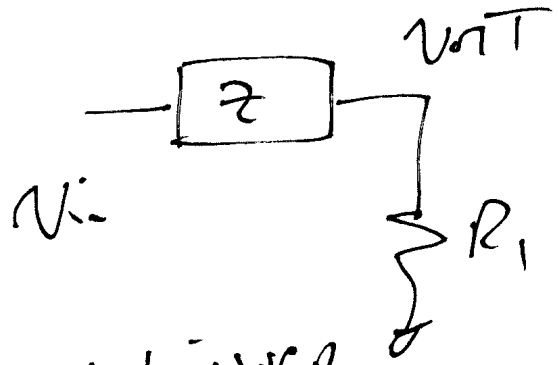

R = 1K
$t_d = 0.7RC = 0.7\,ms$
C = 1μF
$RC = 10^{-3}\,s$
$R_1 \| R_2$
$V_{in} \cdot \frac{R_2}{R_1+R_2}$
C
1K
1K
V_{in}
V_{out}
R_1
V_{in}
R_2
V_{in}
R_1
R_2



$$Z = \frac{R_2 \cdot \frac{1}{j\omega C}}{R_2 + \frac{1}{j\omega C}}$$

$$= \frac{R_2}{1 + j\omega C R_2}$$



$$\frac{V_{OUT}}{V_{in}} = \frac{R_1}{R_1 + Z}$$

$$\frac{R_1}{R_1+R_2} \cdot \frac{1 + j\omega C R_2}{1 + j\omega C R_1 \| R_2} = \frac{R_1}{R_1 + \frac{R_2}{1 + j\omega C R_2}}$$

$$= \frac{R_1 (1 + j\omega C R_2) \cdot \frac{1}{R_1+R_2}}{R_1 + R_2 + j\omega C R_2 R_1 \frac{1}{R_1+R_2}}$$

2)