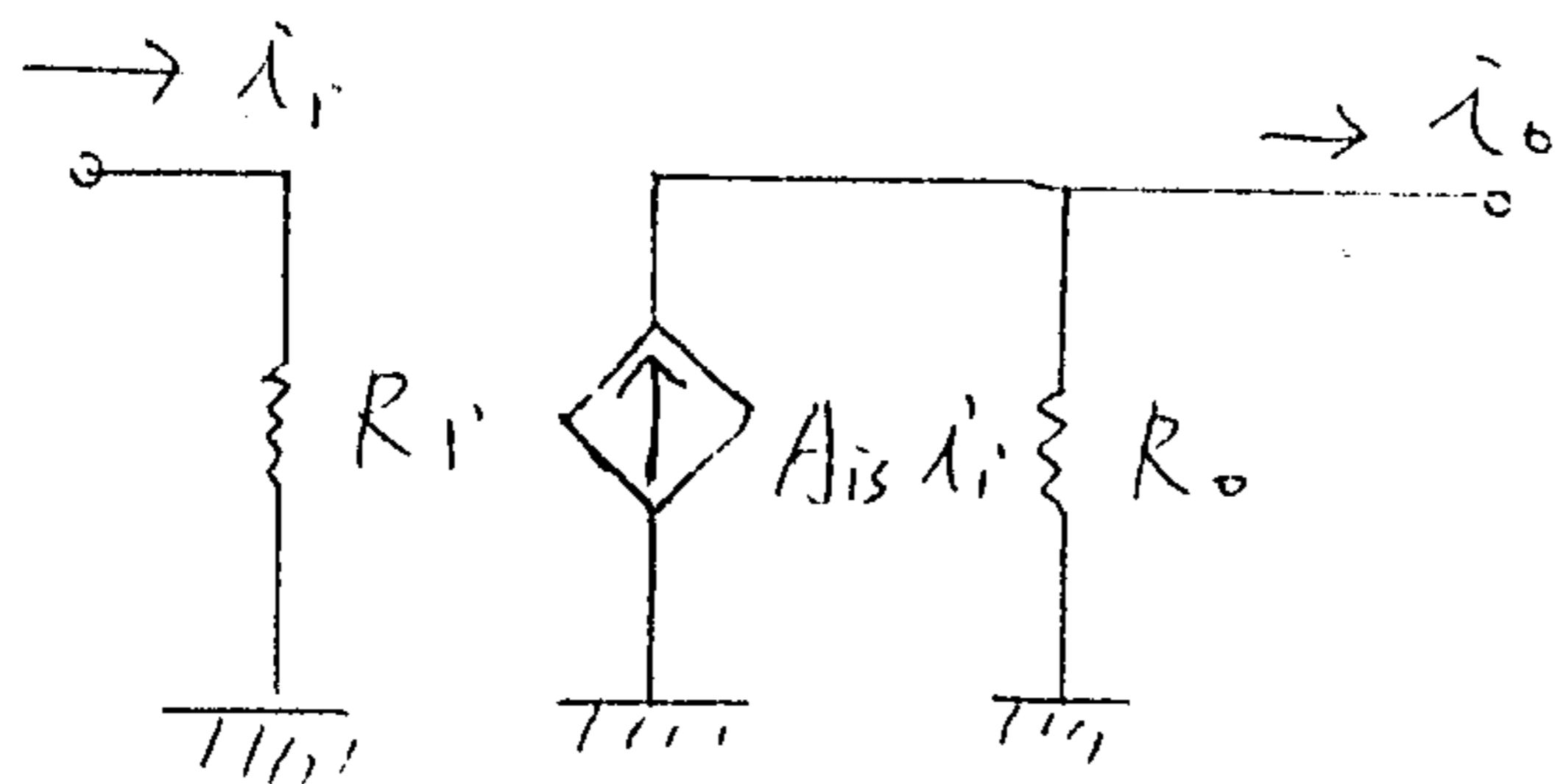


(-) Consider the current amplifier shown below. When the amplifier is 20% fed with a source i_s with a resistance R_s , also the output is loaded with resistance R_L . Find the overall current gain!



(=) Consider the circuit shown in fig. 2. Determine V_o in terms of 20% V_i and verify that it is a first-order all pass filter. (assuming the op Amp is ideal)

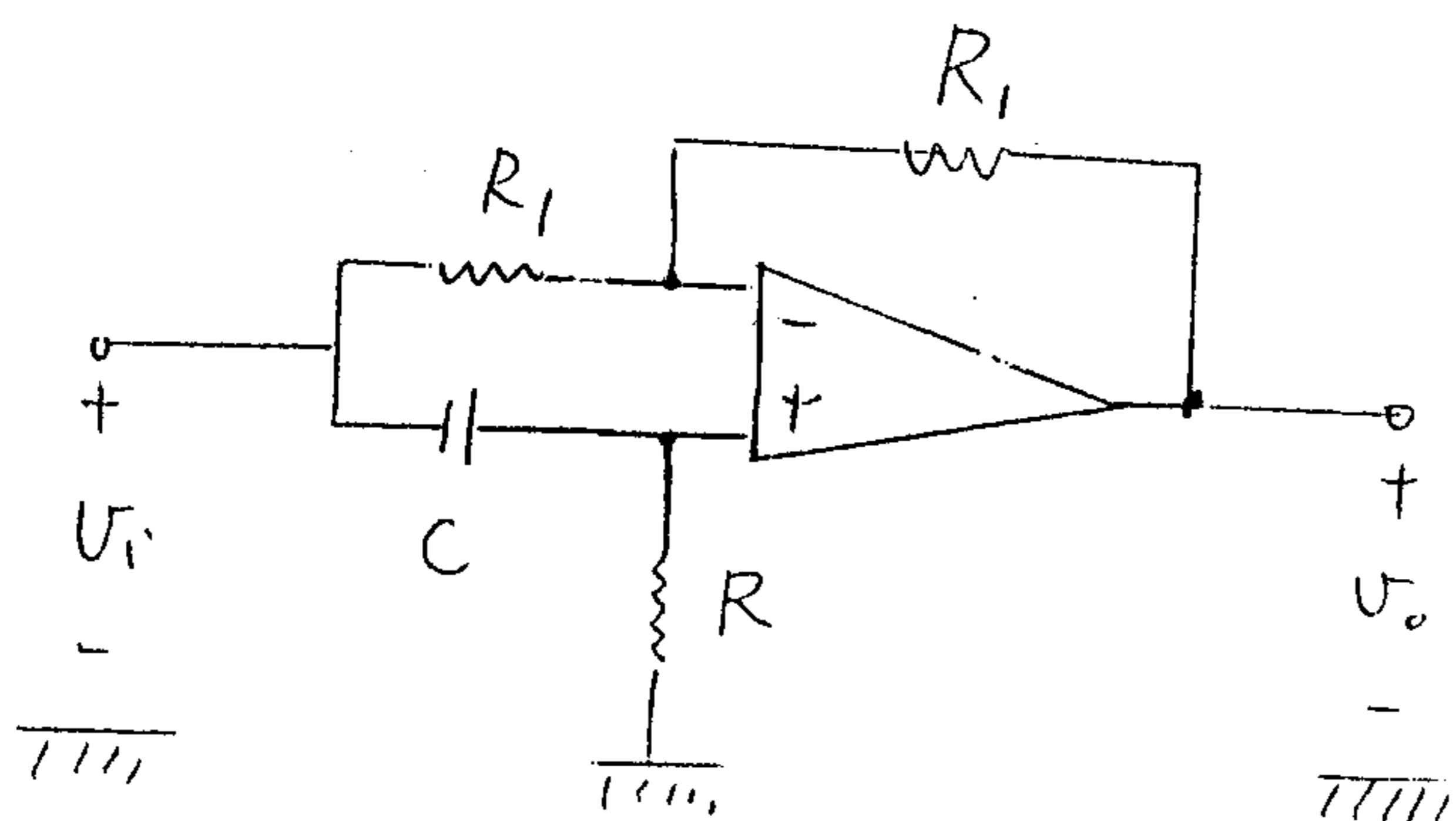


fig. 2

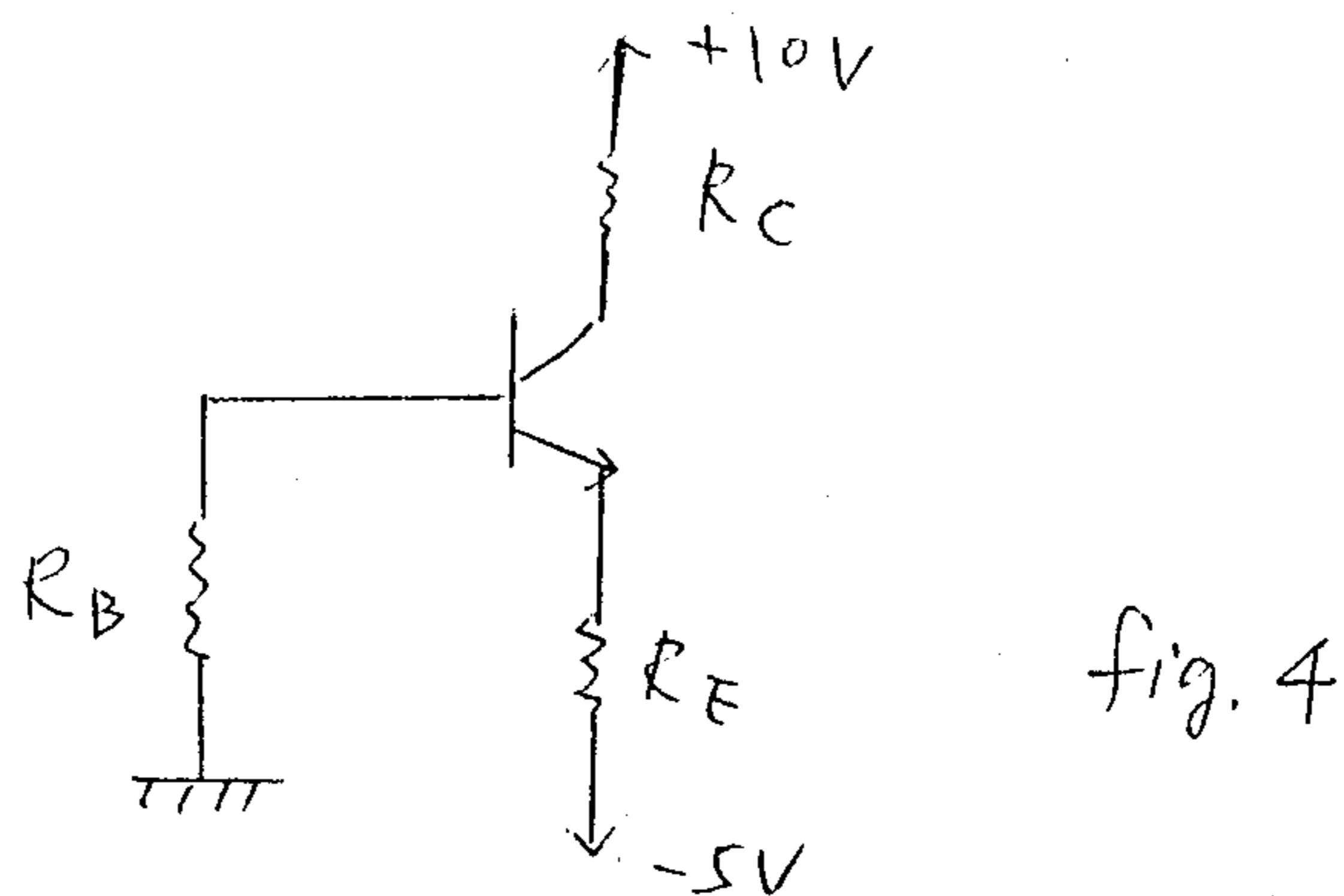
(≡) Find the change in voltage if the current varies from 1mA to 10mA 20% for a silicon diode. (Assuming $n = 1$)

淡江大學八十九學年度進修學士班轉學生招生考試試題

系別：電機工程學系三年級 科目：電子學

本試題共 2 頁

(四) Consider the circuit in fig. 4. If it is to be used as a common-emitter amplifier. Determine R_B , R_C and R_E to establish an emitter current $I_E = 1\text{ mA}$ and provide the highest possible voltage gain. In the meantime, the maximum signal swing at the collector of $\pm 1.5\text{ volt}$ is allowed.



(五) For the circuit shown in fig. 5, the MOSFET has $k_n' \frac{W}{L} = 4\text{ mA/V}^2$, and $V_t = -2\text{ volt}$. Find the voltage V_S !

