

# Electronics II

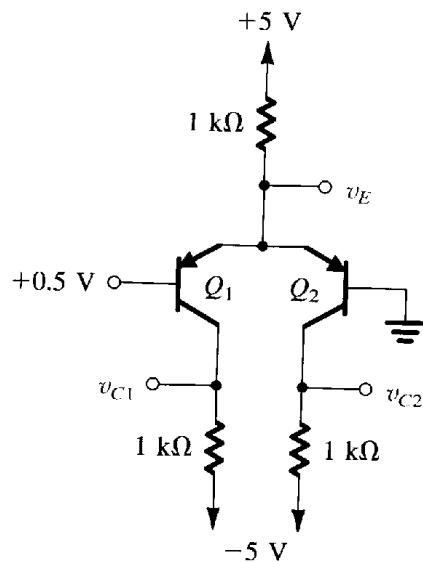
## Problem sheet 2

P. Stallinga

1:

Current sources/mirrors

For the current source of the lecture notes, calculate the non-idealities introduced by finite  $\beta$  and  $r_o$ .

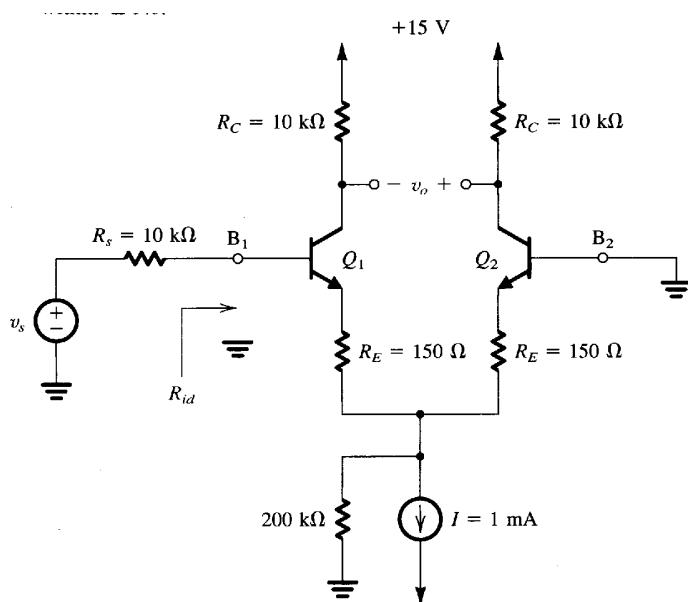


2:

$$\beta = 99, V_A = 100 \text{ V}, V_{BE} = 0.7 \text{ V}, \alpha = 1.$$

Calculate

- a)  $V_E$
- b)  $V_{C1}$
- c)  $V_{C2}$



3:

$$\beta = 99, V_A = 100 \text{ V}$$

Calculate

- a)  $r_{in}$  (common mode)
- b)  $r_{in}$  (differential mode)
- c)  $A_{dm}$
- d)  $A_{cm}$
- e) CMRR