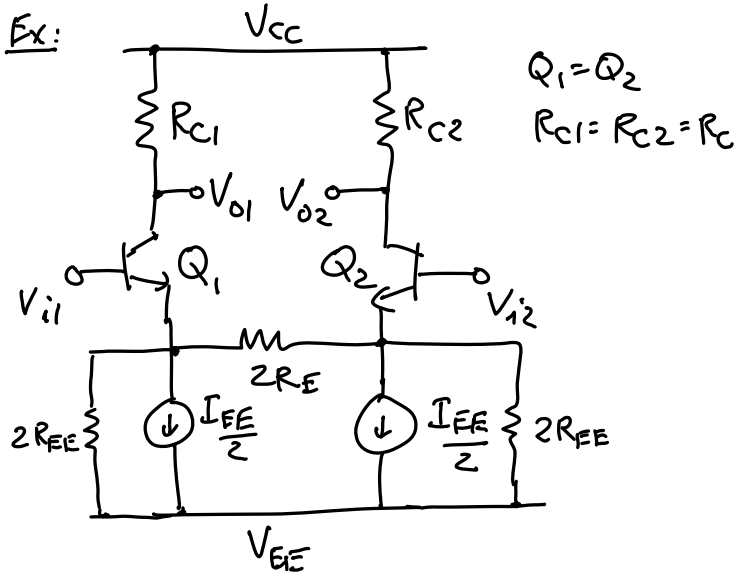
Lecture 13: Op Amps & Emitter Coupled Pair

- Announcements:
  - Pre-Lecture materials online
  - HW#6 online
  - HW#1A online soon for 240A folks
  - Midterm will be on the date specified in your syllabus: Thursday, Oct. 31, 9:00-11 a.m. in this room (three weeks away)
  - Question: Does anyone have a class before this one? If not, you might have more time. → we will start at 9 a.m.
- Lecture Topics:
  - Op Amp Review
  - Emitter Coupled Pair (ECP)
  - Half Circuits
- ----------
- Last Time: Started op amp handout; continue this

Ex:

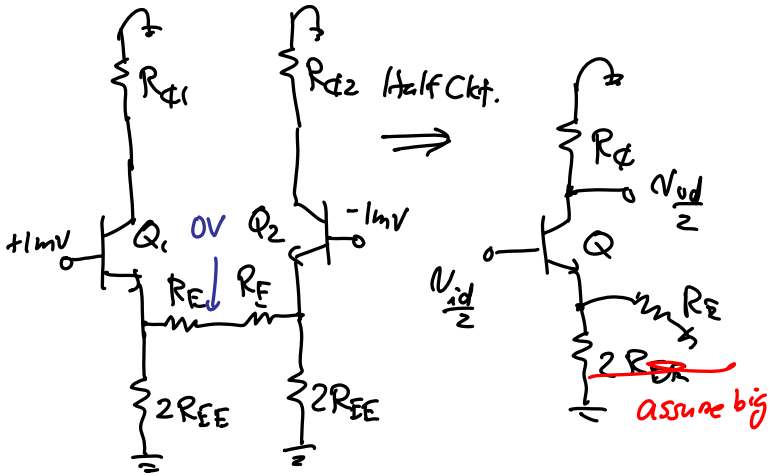


$Q_1 = Q_2$

$R_{C1} = R_{C2} = R_C$

(1) Find the differential gain (A_{dm})

S.S. Ckt:



$$\frac{(V_{od}/2)}{(V_{id}/2)} = \frac{-g_m(r_o(1+g_mR_E)\|R_C)}{1+g_mR_E}$$

$$A_{dm} = \frac{V_{o1}-V_{o2}}{V_{i1}-V_{i2}} = \frac{V_{od}}{V_{id}} =$$

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