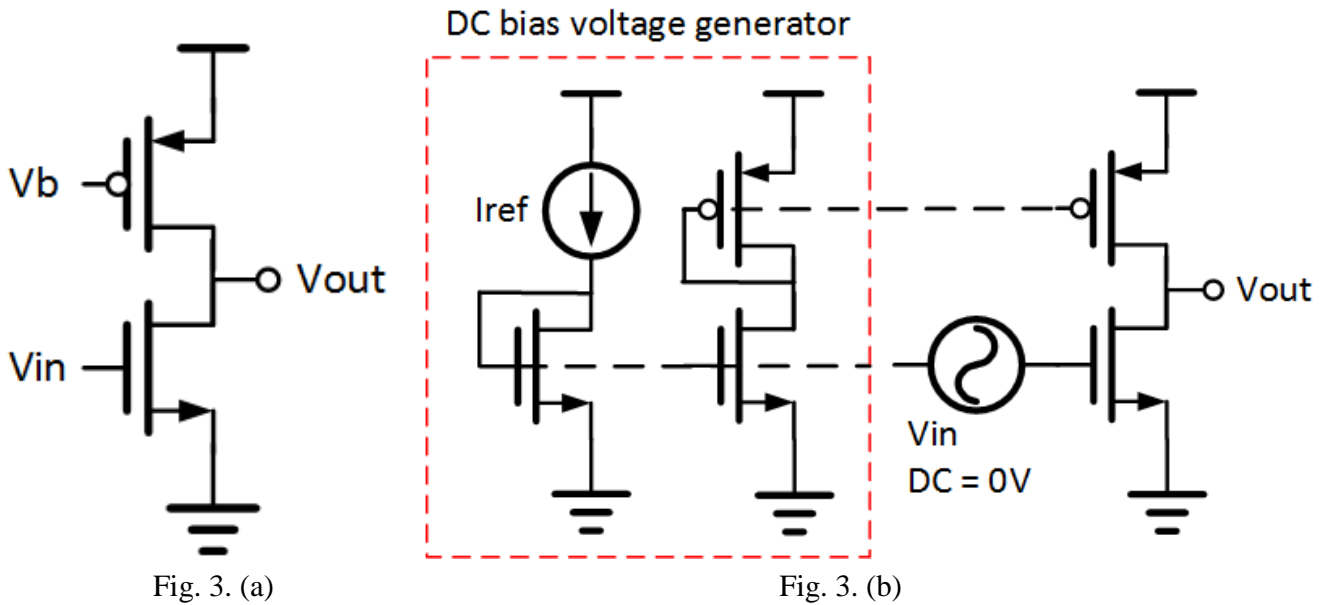




3. Design a common-source amplifier with  $V_{dd}=1.5V$  as shown in Fig. 3. (20%)
- Design the W/L sizes and  $V_b$  as shown in Fig. 3.(a) to get voltage gain  $A_v=V_{out}/V_{in}>80$ . (5%)
  - Keep everything the same and simulate the gain under the SF and FS corner. (5%)
  - Design the W/L sizes and  $I_{ref}$  as shown in Fig. 3.(b) to get voltage gain  $A_v=V_{out}/V_{in}>80$  for all corners. (5%)
  - Comment on the differences between (b) and (c). (10%)



- ✧ *The following should be included in your report (a) schematic (b) HSPICE netlist & simulation file (c) waveform with cursor values (d) comments.*