

**Indian Institute of Technology, Delhi**  
**ELL304 Analog Circuits**  
**Tutorial 8, 17 September 2015**

1. For Fig 1, find expressions for the voltage gain for the four circuits.
2. For Fig 2, 3, find the output current as a function of  $I_0$  and  $R$ .
3. For Fig 4, evaluate  $I_{OUT}$ .
4. For Fig 5, evaluate the differential output voltage.

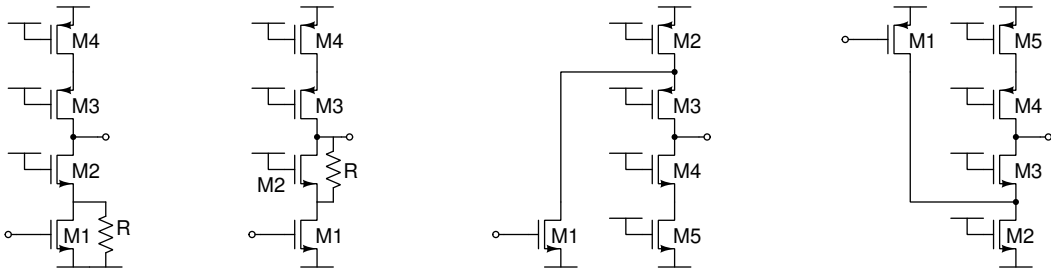


Figure 1

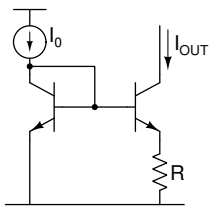


Figure 2

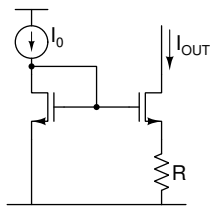


Figure 3

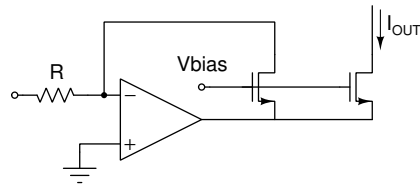


Figure 4

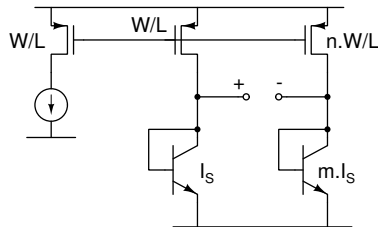


Figure 5