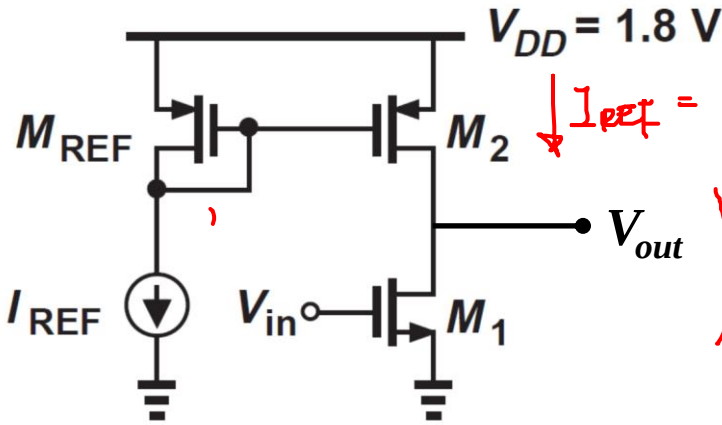
Q1. The common-source stage below must be designed for a voltage gain of 20 and a power budget of 2 mW. Assuming $(W/L)_1 = 20/0.18$, $\lambda_1 = 0.1\ V^{-1}$, and $\lambda_2 = 0.2\ V^{-1}$, $G_m = g_{m1}$, $g_{m1} = 2I_{D1}/(V_{GS1} - V_{TH1})$, $V_{TH1} = 0.4$ V and $\mu_n C_{ox} = 100\ \mu A/V^2$. **Find** $(W/L)_2/(W/L)_{REF}$.



(Optional) Course Evaluation **http://coursesel.umji.sjtu.edu.cn/**

Please kindly provide your thought/opinion/suggestion in the course evaluation. It could be **positive aspects** of the course and instructor, some points that **could be better** in the future course offering, or some points that **did not meet your expectations**.

The system will be closed on **Sunday 10th December 23:59**.