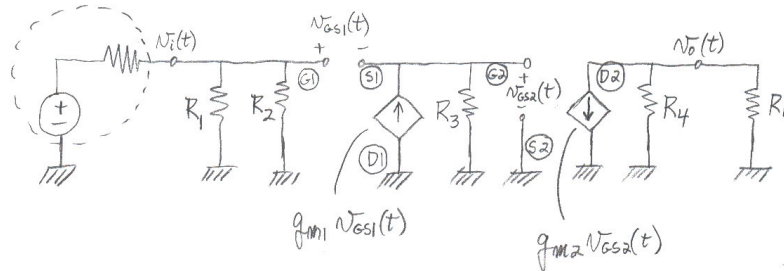


Answers to EEE210 Second Midterm AY2018-2019

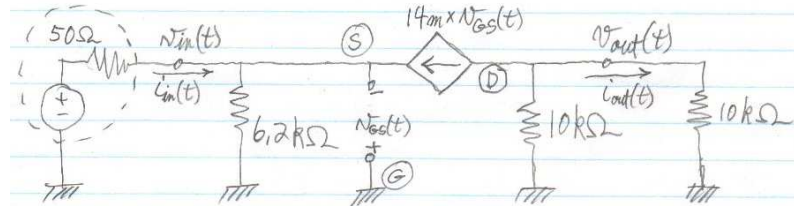
1. Set all DC sources to 0, replace all capacitors by short-circuits, replace the MOSFETs by their small signal AC models and redraw. We obtain:



2. $I_D = 7 \text{ mA}$, $R_1 = 39.03 \text{ k}\Omega$, $R_2 = 14.99 \text{ k}\Omega$, $R_D = 1.5 \text{ k}\Omega$, $R_S = 438 \Omega$.
3. (a) Set all DC sources to 0, replace all capacitors by short-circuits, replace the MOSFET by its small signal AC model with:

$$g_m = 14 \text{ mS}$$

and redraw. Easy. Refer to notes.



- (b) We easily find $A_V = 70$.