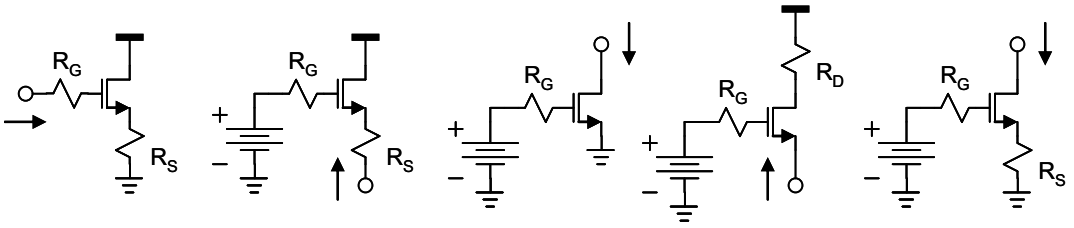
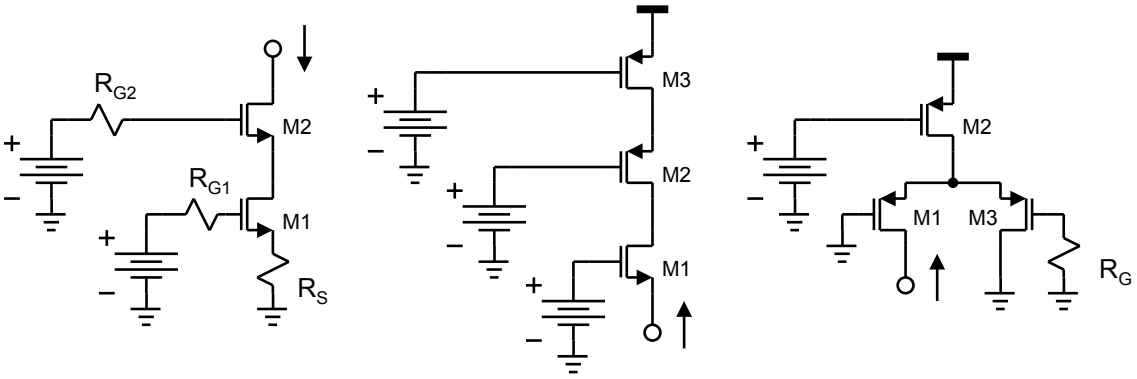
ECE 423/523 – CMOS Integrated Circuits II

Problem Set #2

1. Using the small-signal equivalent model, find/derive the equivalent resistance for the configurations shown below.



2. Find the equivalent resistance for the following circuits using what you already know from problem 1.



3. Bias the following circuits such that all transistors operate comfortably in saturation, then "measure" (find) the Norton equivalent small-signal **Gm** and **Rout** by creating your own "experiment" (simulation). Compare the results to the standard small-signal gain simulation. Use .AC command (do not use .TF command) for all small-signal analysis. Use 0.18µm CMOS models and 1.8V supply.