UNIVERSITY OF CALIFORNIA AT BERKELEY
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1) Consider a folded cascade amplifier (lecture slide MOA14).

   Assume a load capacitance C_L. Assume all parasitic MOSFET capacitances can be lumped into a single capacitor C_p at the drain of the input differential pair. Ignore all other capacitances.

   a) Find expressions for the dominant pole p_d and the non-dominant pole p_{nd}.

   b) Assume this amplifier is being used in a feedback configuration with feedback factor f.

      What is the constraint between the dominant pole GBW and the non-dominant pole p_{nd} to guarantee at least a 60^o phase margin ?

      Express this constraint as a function of the small signal parameters of the devices and the two capacitors.

   c) Find an expression for the closed loop transfer function as a function of A_0 (the low frequency open loop gain), f, GBW and p_{nd}.

   d) Using the expression for the closed loop transfer function and the constraint to guarantee 60^o phase margin, find an expression for the time domain step response.