EE3703: Analog Circuits Laboratory
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Experiment 1: Inverter characteristics

1) In the first part where you determine the characteristics of the inverter as a transconductor, you will need to choose RF and the opamp supplies correctly.

   a) From the data sheet, find out the output swing limits of the opamp LM324 when $\{V_{cc}, V_{ee}\} = \{6V, 0\}$. The datasheet numbers maybe for different supplies, but assume that the overhead on the higher and lower sides are the same as what is given there.

   b) If you have to measure up to ±2mA while keeping the opamp within the swing limits, what is the constraint on R_F? (In the experiment, you should choose R_F and the opamp supplies so that this measurement can be made properly)

2) What is the typical propagation delay of the inverter at a 6V supply? If this value is not given, interpolate between the given values.

3) In the last part, what is the constraint on C_{large} if the resistance to the right side of it is 250Ω and you use a 10kHz sinusoid?

4) If you use a polarized capacitor for C_{large}, which side should be the positive terminal? You have to decide this based on the total voltage across the capacitor.