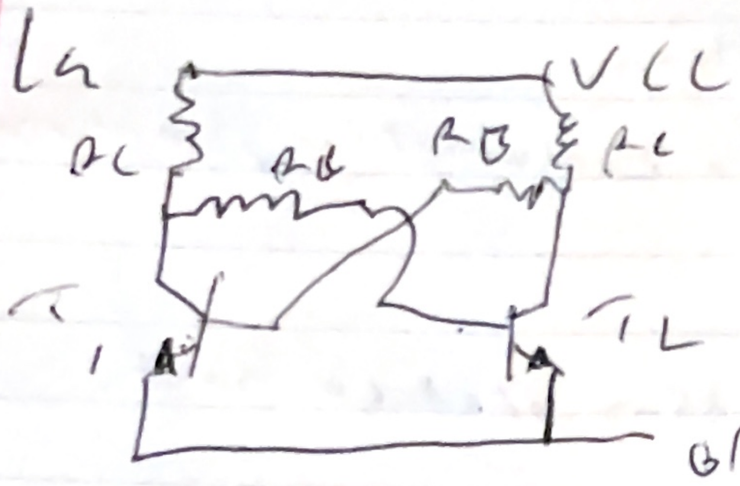
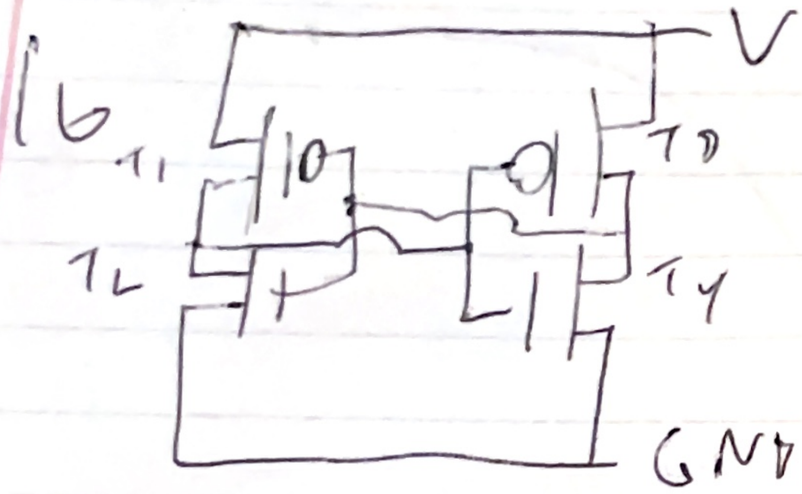
1a



$P \approx \frac{V_{CC}^2}{R_C}$ Since $R_C >> R_B$

$V_{RC} \approx V_{CC}$

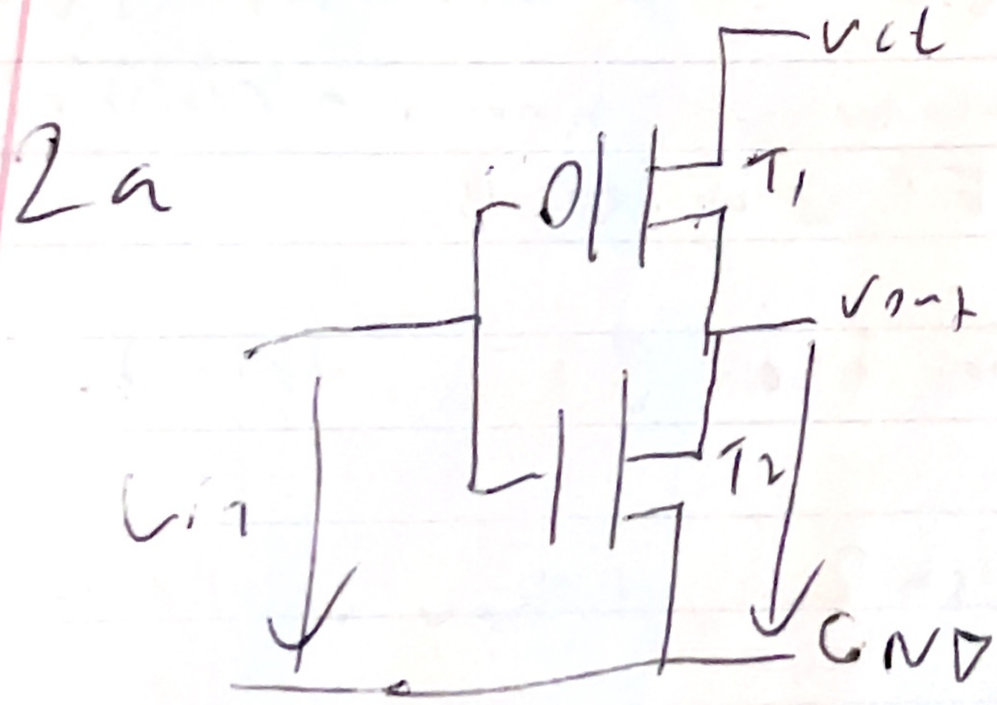
1b



O static power consumption

1c. BJT based SRAM cells consume more power than their FET counterparts.

2a



If Vin = 0, T_1 is open to being a p channel FET, and T_2 is off. This would make $V_{out} = V_{CC}$. If $V_{in} \approx V_{CC}$, this means T_1 is off, making $V_{out} = GND$.

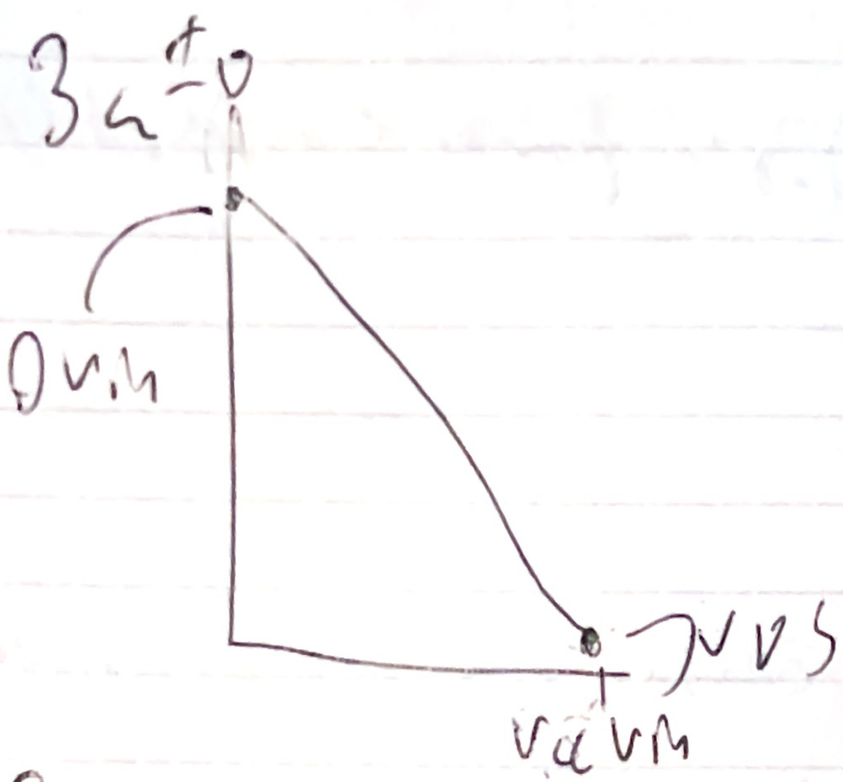
2b

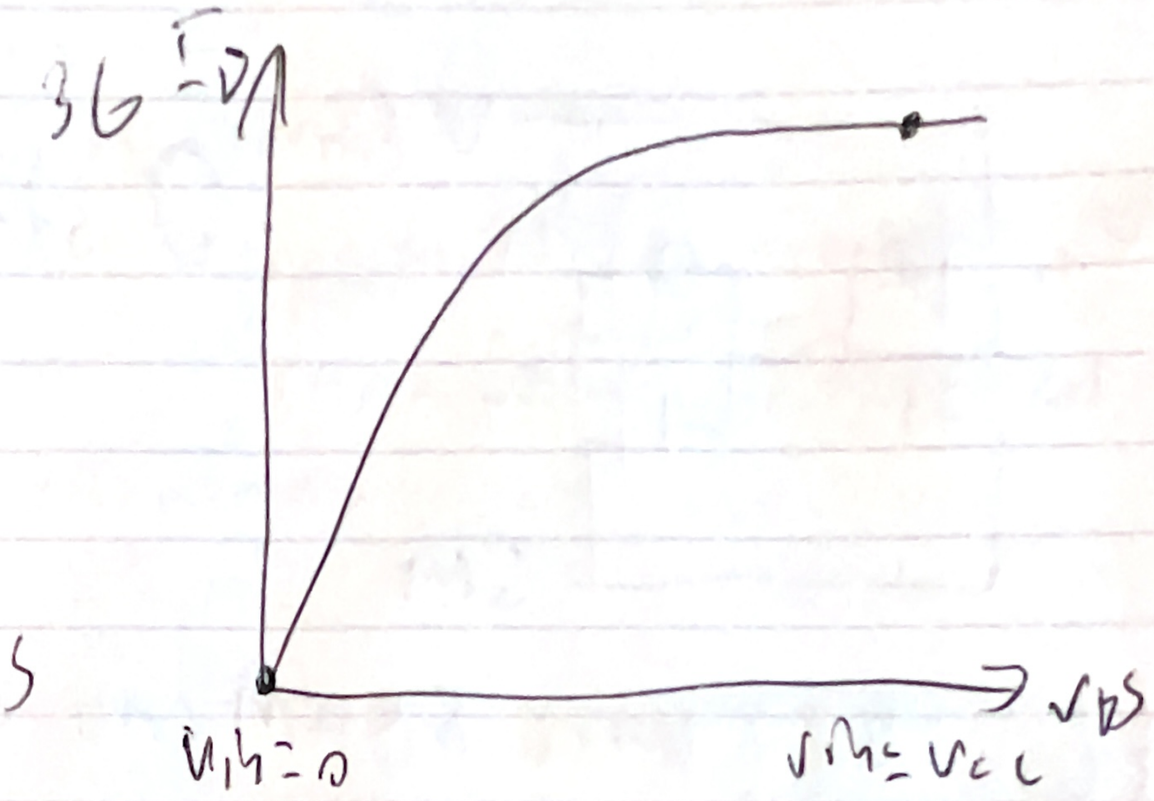
The small signal circuit has no interaction between V_{in} and V_{out}.

2c O static power consumption

2d They have O static power consumption, so they generate no heat.

2e They consume power, and thus produce heat.





3c They both invert wins but have inverters. ID vs VDS graphs due to the difference between having a resistor block access to VCC or a pFET block access.

4a False. FETs are faster than BJTs in most instances.

4b True. With FETs high ZIN, they will draw little current from the signal, keeping it intact.