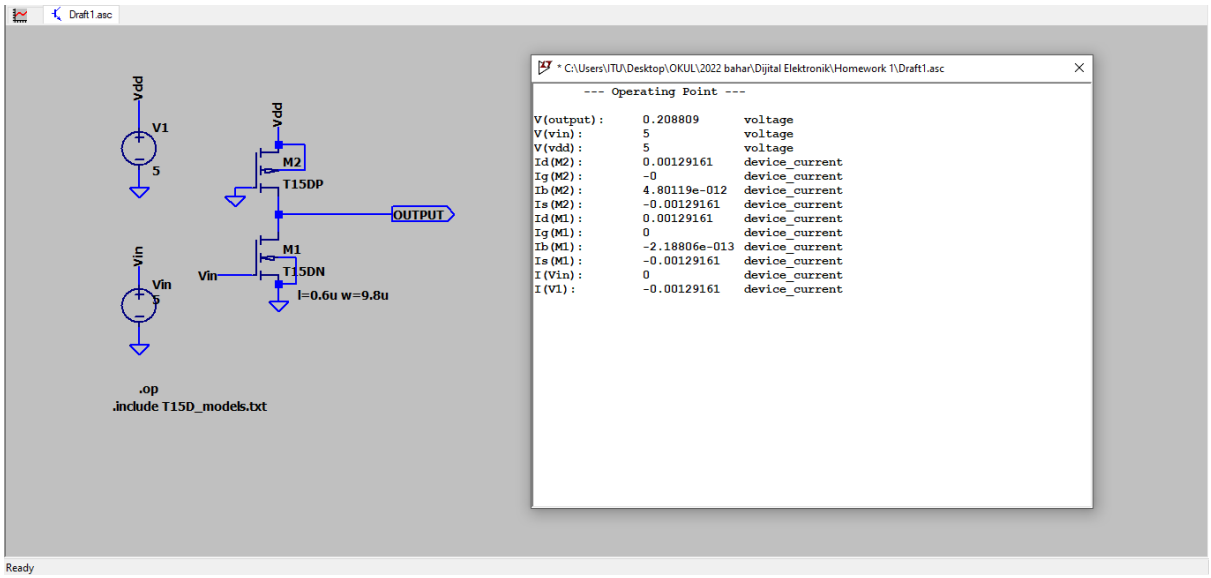
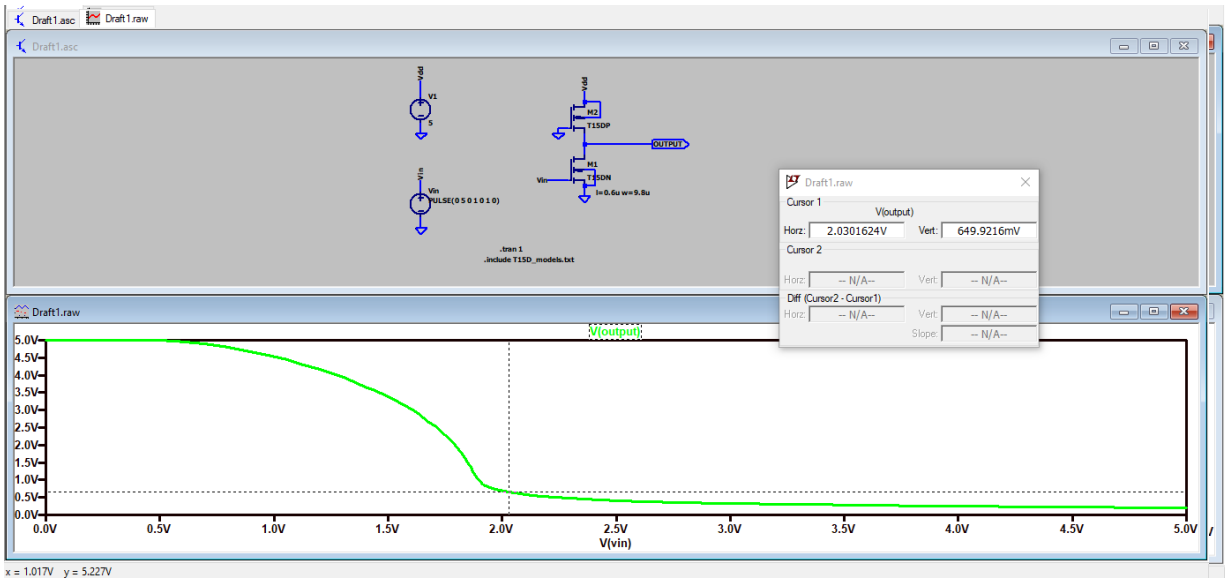
2-)

a-) Value of Wn 9.8u

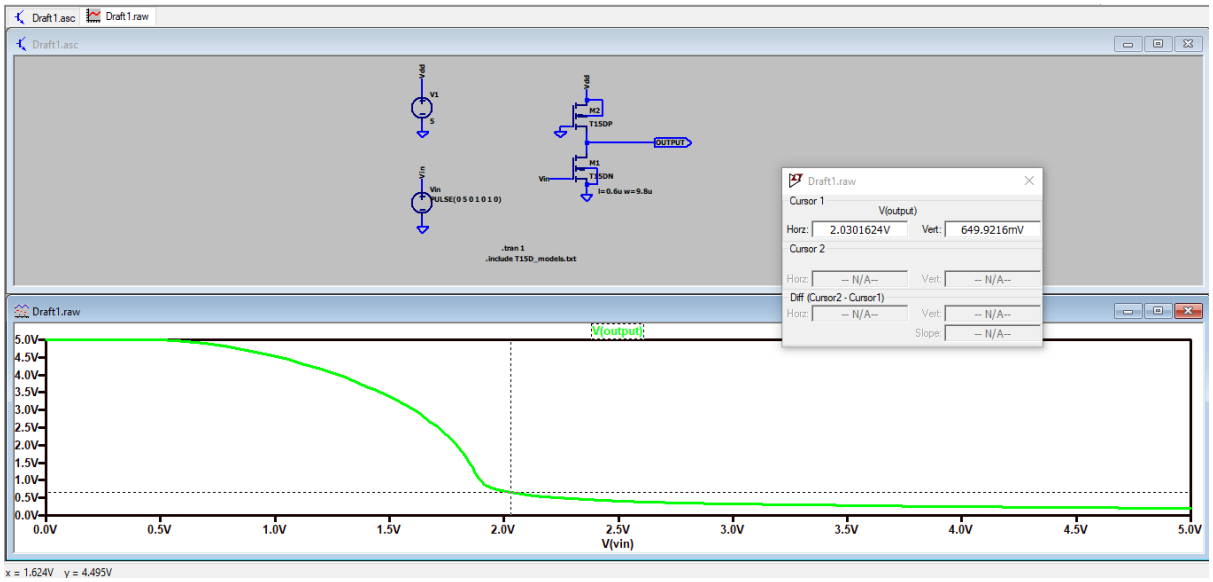


b-)

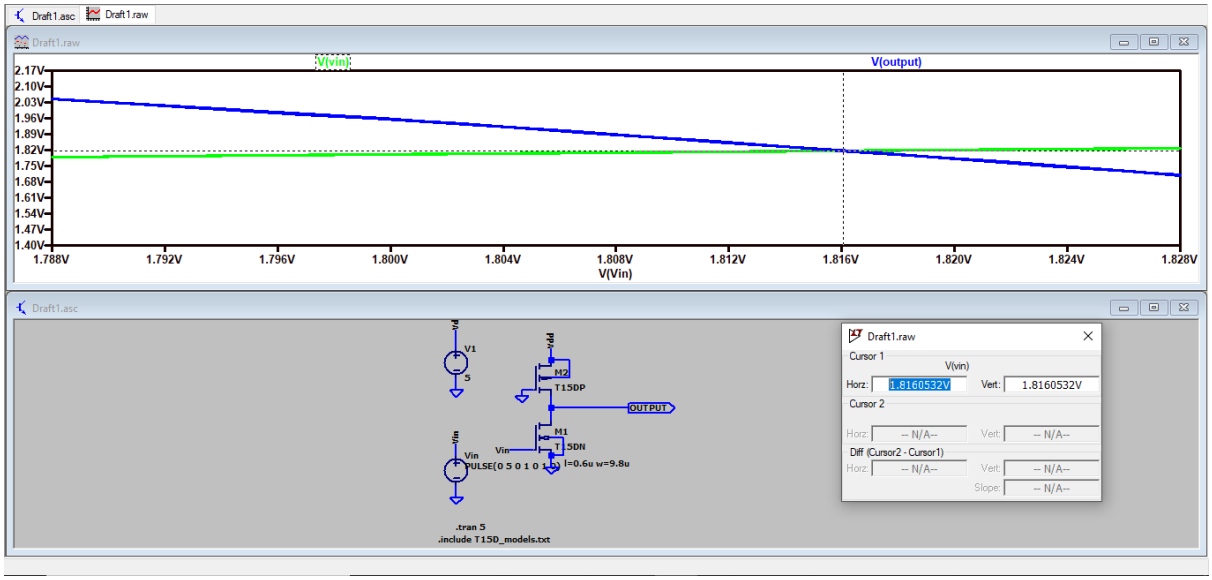
Slope of the curve is -1 when Vin equals 765.66mV. So NML is approximately 0.766 V



Slope of the graph is -1 when Vin equals to 2.03 V. So NMH is approximately 2.97 V. (Vdd – 2.03)

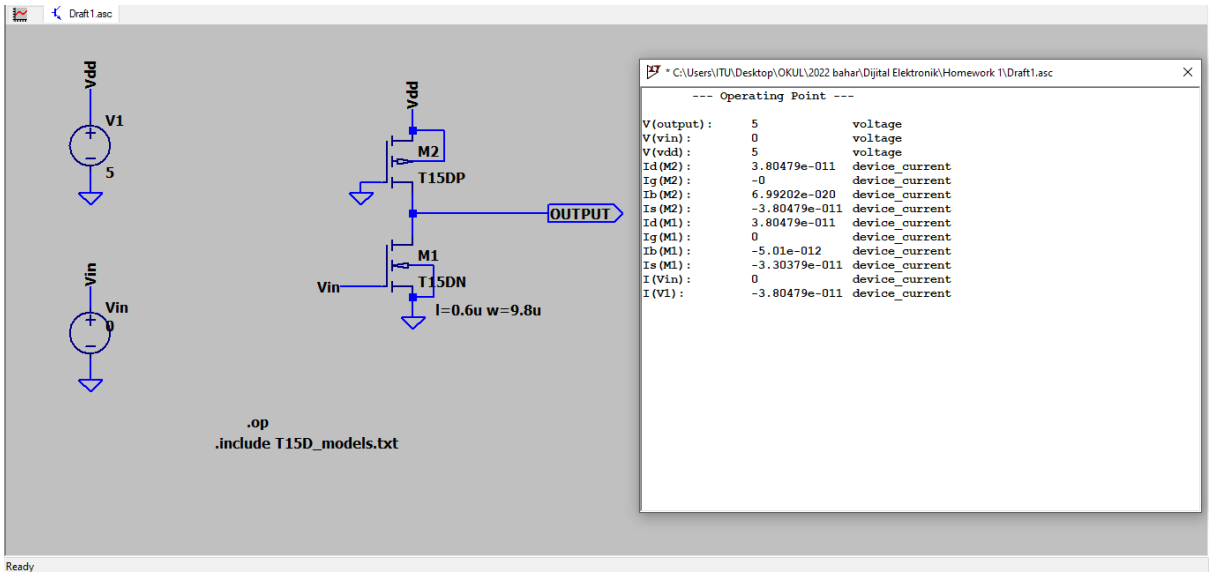


Switch voltage is approximately 1.81 V.



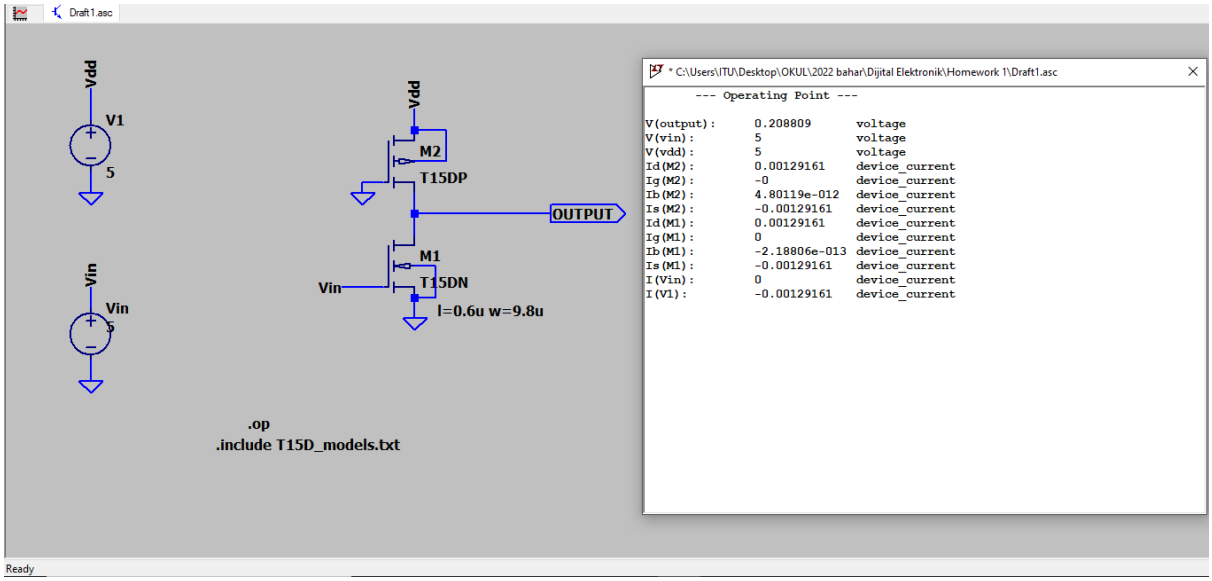
c) Static power consumption for Vin=0 ➔ P=V*I

5*3.8*10-11=19*10-11 W.

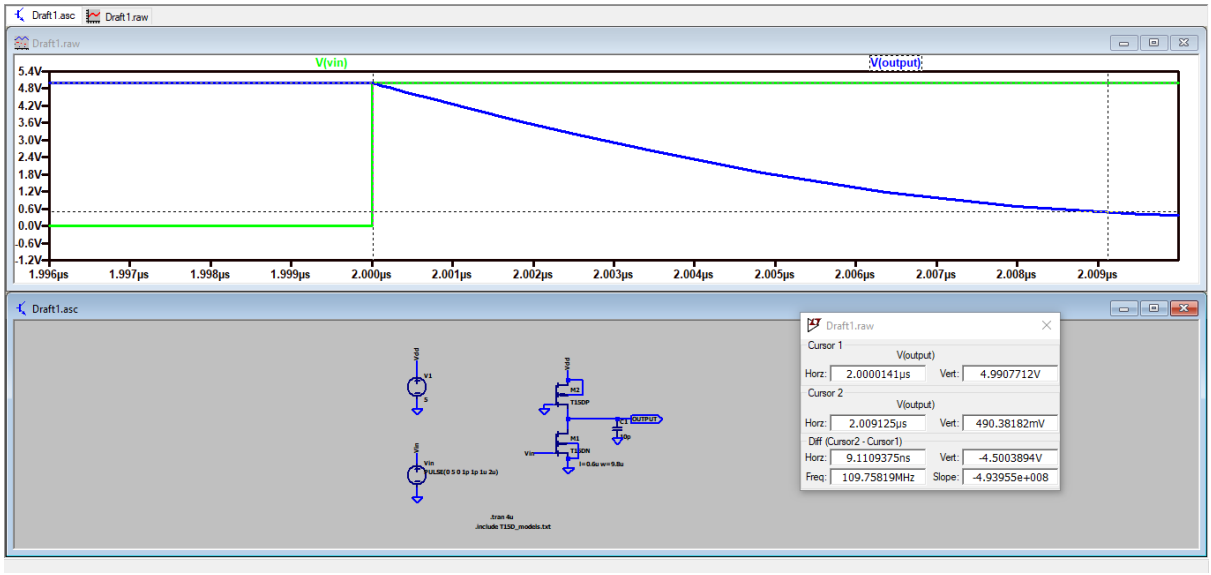


Static power consumption for Vin=5 ➔ P=V*I

5*12.9*10-3=64.5*10-3 W.



d) tPLH=9.8 ns



e-)

i) calculation = 9.61 µm simulation = 10 µm

ii) calculation = 1.955 V simulation = 1.816 V

iii) calculation ➔ 0 W for Vin = 0, 10.5 mW for Vin = 5V and 5.25 mW Avg Power

iv)➔ 0 for Vin = 0, 6.45 mW for Vin=5V and 3.225 mW Avg Power

iv) calculation = 8.44ns simulation 9.11 ns