EECS 312 – Electronic Circuits I – Homework 3
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1. Fill in the missing values in the table. Diodes A to F are Junction Diodes. Assume V_T=25mV.

Diode	I_S (A)	n	V_D (V)	I_D (mA)	P_D (mW)
A	$3x10^{-15}$	1	0.65	.582	.382
B	$2x10^{-9}$	1.8	0.64	3	1.92
C	$3x10^{-12}$	1.38	0.7	2	1.4
D	$9.36x10^{-11}$	1.9	0.55	.01	.0055
E	$9.51x10^{-15}$	1.2	.769	1.3	1
F	$1.2x10^{-13}$	1.05	.68	17.65	12

2. A Junction Diode with n=1.4 conducts 0.3mA at 0.7V, $I_D(V_D=0.7V)=0.3mA$.

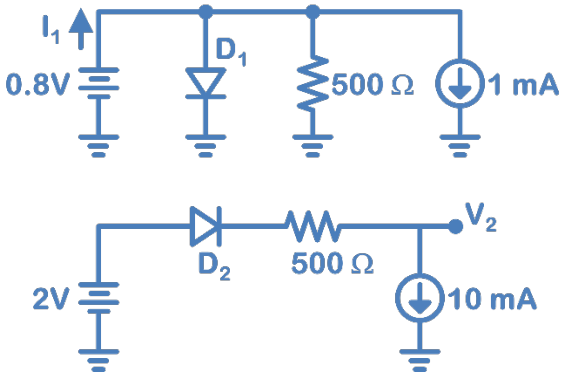
a. How much does the device conduct (find I_D) at V_D=0.8V? 0.6V? 0.5V?

5.22mA, 17.23uA, 0.990uA

b. What voltage (find V_D) would produce a current of I_D=50uA? 5mA? 50mA?

0.637V, 0.798V, 0.879V

3. Find the I1 and V2 in the following circuit. Use $I_S=4x10^{-14}$ A and n=1.4 for the diodes.



I1 = 2.93mA, V2=-3.92V