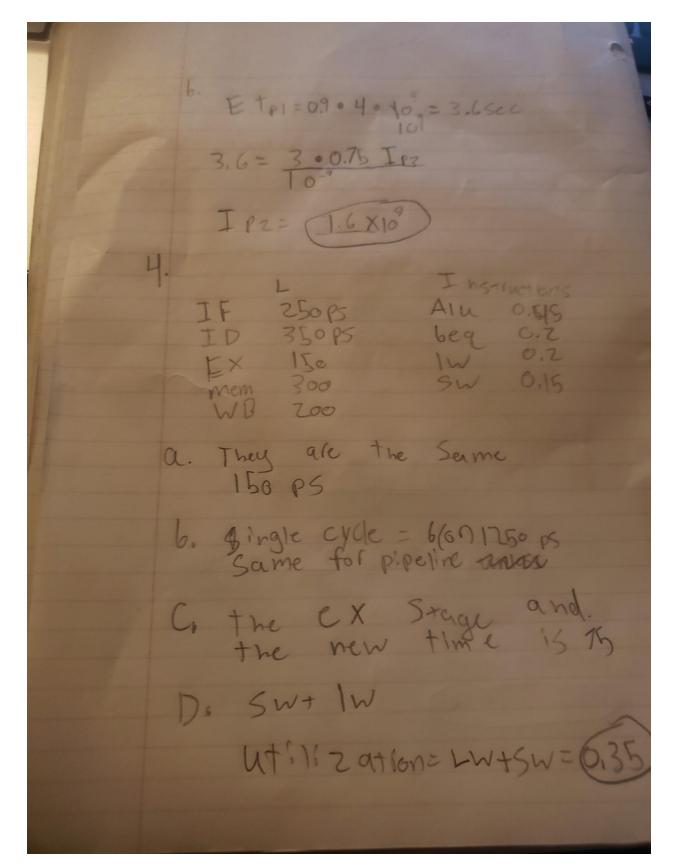
PICPI = 1/2CRITIONS - 0.101+0.202+05-3+0 = 0.1 + 0.4 + 1.5 + 1.5 = 3.5 cr1 $= 2.0.1 + 2.0.2 2.0.5 \cdot 2.0.2$ = 6.2 + 6.4 + 1 + 8.4PI= I. 3,5 = 3.5 x106 cycls PZ= I . Z = ZX106 pz is tastel because it has fewer CPI and a fustel Clockspeed

2) I: 1x10° instantion I = 1.2x10° CPUT= 1.15 00 CPUT= 1.5500 Clock Cycle = 1 ms a. CPUT: IXCPIXCO CPI = CPUT

-CPI = 10° · LPUT ns = CPUT

10° · Loud · 10 I A = 1.1 = 1.1 Cpi $B = \frac{1.5}{1.7} = 1.25 \text{ Cpi}$ CT. IC. CPI = CT. IC. CPI CT6/01.1=CT01.201.25 CT = CT, 1.36 1.5 = Ct, 0 1.5 Ct, - W, CTo = 136hs

C. Extimes IXCPIXCT = 6.0 X 108 X 1.1 X 109 = 6.6 × 10 = 0, 22 sec Speedup A-C= 1.1 (5x) CT 4GHZA 3GHZ CPI 0.9 9 6.75 9 T 5×10 1×10 PI ET = 5.0.9.10 .4 = 18 sec PZ ET = 1.00.75.3.10 = 2.25 Sec Performancepl= 0.655 Pettormanapz 20,4 (not true)



e.) alu+ Iw f.) 4+11= 0.45+0.2=(0.65) Clock cycle times all the Pirdine = (ToI o IF + (IF + 1D+EX + Mem) Multi - Jo I · (0.45 (1F+1D+EX) +0.2 (1F+1D+EX) +0.2 (1F+1D+Mcm) +0.15 (1F+1D+Mcm) (= ct.I. 802.5) Single Cycle = CT. I. (15+1) +EX+M