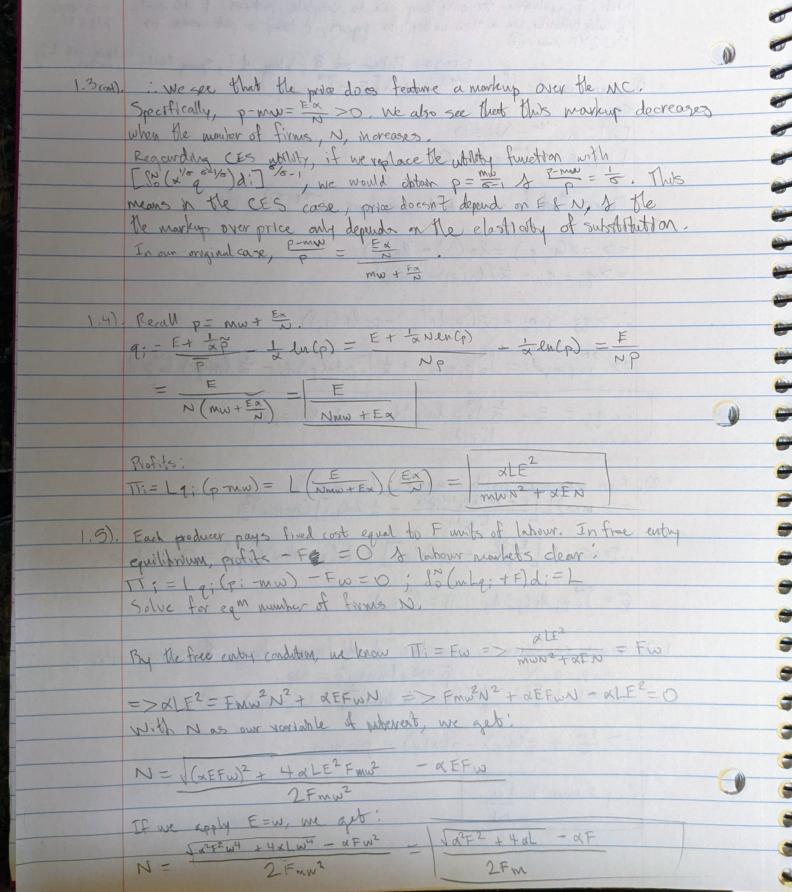
Worked with Zhenghuo Li Paul Ford Note: I apologice for only being able to complete problem) tits parts. I unfor turodely am a slow writer for pupers, I have to put words for the ZYP now. @ 12/05/22 EC0384G plt377 1.1). Lagrangian L= So (1-e-2i) di + NE - So pizidi)

Ecco 3841 Problem Set 5 (Problem Set 2, Spring 2022; Problem Set 2,)

Ecco 3841 Problem Set 5 (Problem Set 2, Spring 2022; Problem Set 2,) [qi]: de - dqi - \p; = 0 [x]: E - Sp;q;di = 0 Observe that for some if t j, we have e-x(2;-2;) = P; =>  $- \times (q_i - q_j) = \ln (p_i) - \ln (p_j)$ =>  $q_j = q_i + \frac{1}{2} (\ln (p_i) - \ln (p_j))$ :. P: 2; = P: 9; + \( \( \rightarrow (P; \ln (P; )) - p; \ln (P; )) => Sopiqidi = Sopiqidi + + Dopiln(pi)di - \alphaln(pi) sopidi i. q; = E+ \(\frac{1}{2}\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \ 1.2). Firm maximises profits: max & Lq: (p; -mw) & = > max & L [E+ 1/a lop; lu(p;)dis - L ln(p;)] (p;-mw) & Sop; dis :.[FOCT: L[E+xp] - - Len(p)] + L(p:-mw)(-1) = 0, where ~= Jop; ln(p;)d; ; == Jop;dj. 1.3). Assure equilibrium is symmetric of all firms charge the same price p. : P:=P:=P . V: i. P=Npln(p), P=Np.
: F=00]: [ [=+1/2Npln(p) - 1/2 en(p)] + L(p-mw) (-xp) = 0 => Ex + pln(p) - pln(p) = p-mw inp=mw + Ed



1.6). Solve for welfare  $\frac{w}{p}$ . How does it depend on the number of firms?  $\frac{w}{p} = \frac{w}{nw + \frac{ex}{N}} = \frac{Nw}{Nmw + Ex}$ : As NT, welfare p will also 1.