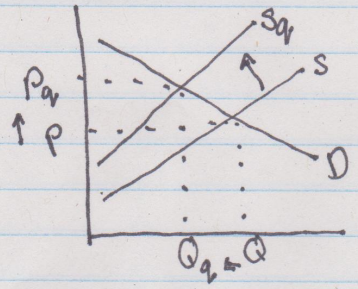
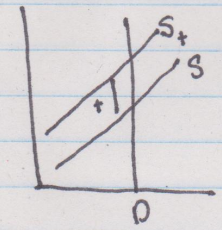
Problem Set 1

Chapter 2

8) As quota is reimposed, equilibrium price increases and quantity decreases.

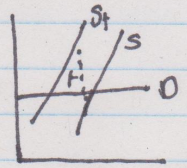


18) a)



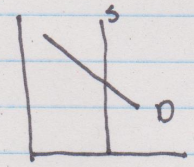
supply curve shifts up by t. consumers take on price change

b)



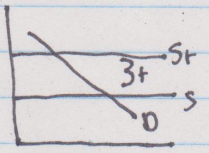
supply curve shifts by t. price for the consumer doesn't change.

c)



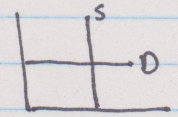
there is no effect, suppliers must take on additional cost

d)

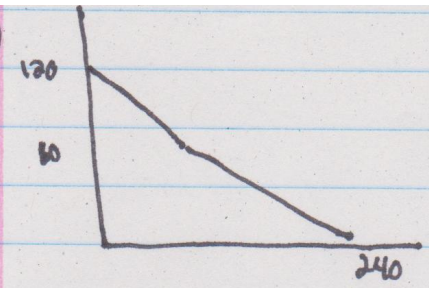


supply curve shifts up by t, consumers take on price

e)



no change, suppliers take on cost.

25) 

$Q = 120 - p$ when $p > 60$
$Q = 240 - 3p$ when $p \leq 60$

26) $Q_T = Q_S + Q_L$
$Q_T = 5.97p^{-0.563} + 8.77p^{-0.296}$
$= 5.97(0.4)^{-0.563} + 8.77(0.4)^{-0.296}$
$\approx 10 + 11.5$
$Q_T \approx 21.5$

27) small: -0.563
large: -0.296

$Q = Ap^{-\alpha}$
where elasticity $= \alpha$

32) $\varepsilon = \frac{-8.3}{21} = -0.395$

$-0.395 \not\leq 21$, so demand is inelastic.

38) Almonds: $\frac{12}{(12+0.47)} = 0.96$

Cotton: $\frac{0.73}{(0.73+0.68)} = 0.52$

Tomatoes: $\frac{0.64}{(0.64+0.26)} = 0.71$

Chapter 3

24) $\frac{10}{10} \neq \frac{5}{2}$

MU per dollar is greater for cookies so he should buy more cookies and less books.

31) $\frac{\partial U}{\partial q_1} = \frac{q_2(q_1+q_2) - q_1 q_2}{(q_1+q_2)^2} = \frac{q_2^2}{(q_1+q_2)^2}$

$\frac{\partial U}{\partial q_2} = \frac{q_1^2}{(q_1+q_2)^2}$

MRS = Price: $\frac{q_2^2}{q_1^2} = \frac{P_1}{P_2}$ $\quad q_2 = \left(\frac{P_1}{P_2}\right)^{\frac{1}{2}} q_1$

Substitute into constraint:

$y = P_1 q_1 + P_2 q_1 \left(\frac{P_1}{P_2}\right)^{\frac{1}{2}}$

$q_1^* = \frac{y}{P_1 + (P_1 P_2)^{\frac{1}{2}}}$ $\quad q_2^* = \frac{y}{P_2 + (P_1 P_2)^{\frac{1}{2}}}$

33) MRS: $\frac{-U_1}{U_2}$

If $V(q_1, q_2) = F(U(q_1, q_2))$, new MRS $= \frac{-V_1}{V_2} = \frac{\frac{\partial F}{\partial U} U_1}{\frac{\partial F}{\partial U} U_2} = -\frac{U_1}{U_2}$

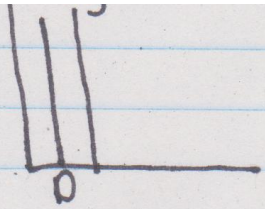
Part 2:

1) $D(p, s) = S(p)$ $\quad p = p(s)$

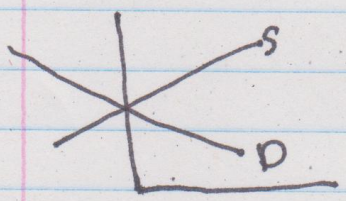
$\frac{\partial D}{\partial p} \cdot \frac{\partial p}{\partial s} + \frac{\partial D}{\partial s} = \frac{\partial S}{\partial p} \cdot \frac{\partial p}{\partial s}$

$\frac{\partial p}{\partial s}\left[\frac{\partial D}{\partial p} - \frac{\partial S}{\partial p}\right] = -\frac{\partial D}{\partial s}$

2) No equilibria:

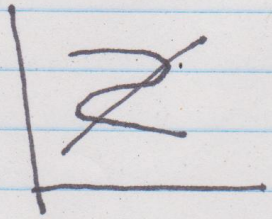


inelastic supply and demand where the two are not equal

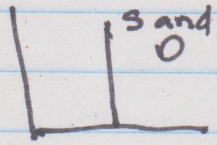


price that would be equilibrium is negative

Multiple:



backward-bending demand cu



inelastic supply and demand are the same line

3) Most useful!

- competitive markets w/ many players and full information
- middle of graph

Least Useful

- monopolies, oligopolies w/ few players and limited information
- ends of graph, where data are extreme