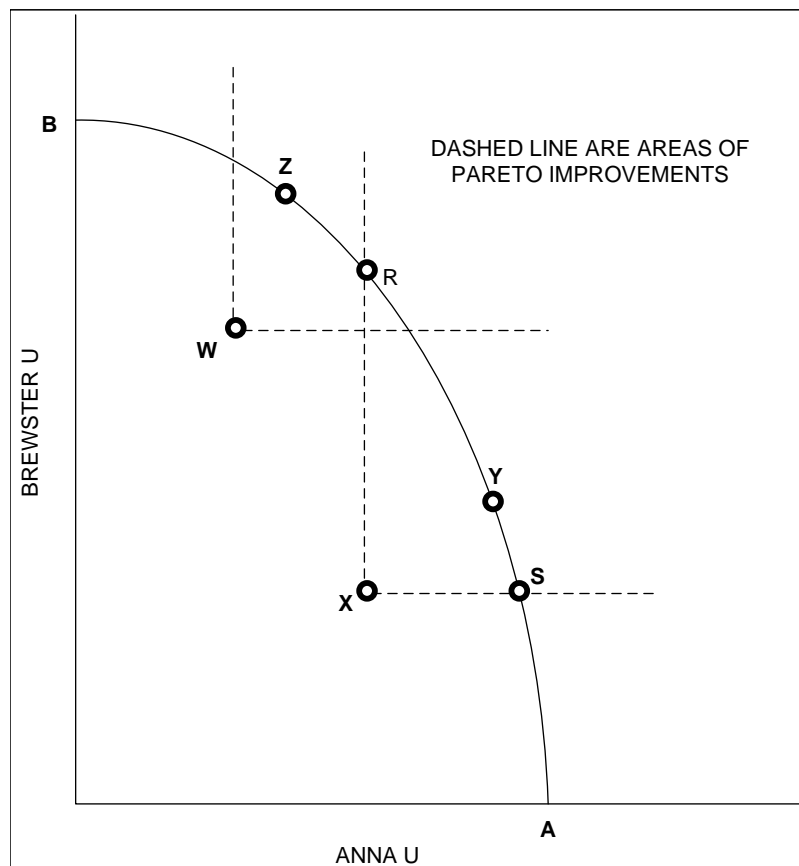


Homework #1 pg 45-46 #3, 4,5 & 6

[3]

Pop	1,000,000	WTP	Max WTP	Tax Bill (\$2)	Surplus	transfer	
low WTP	600,000	\$ 1	\$ 600,000	\$ 1,200,000	-\$ 600,000	\$ 600,000	\$ -
Hi WTP	400,000	\$ 100	\$ 40,000,000	\$ 800,000	\$ 39,200,000	-\$ 600,000	\$ 38,600,000
			\$ 40,600,000	\$ 2,000,000	\$ 38,600,000	\$ -	\$ 38,600,000
Cost:	\$ 2,000,000						
						1.5	
Pop	1,000,000	WTP	Max WTP	Tax Bill (\$2)	CS		
low WTP	600,000	\$ 1.00	\$ 600,000	\$ 600,000	\$ -		
Hi WTP	400,000	\$ 100.00	\$ 40,000,000	\$ 1,400,000	\$ 38,600,000		
			\$ 40,600,000	\$ 2,000,000	\$ 38,600,000		

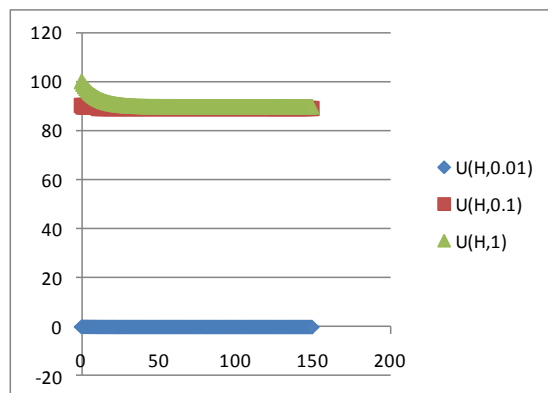
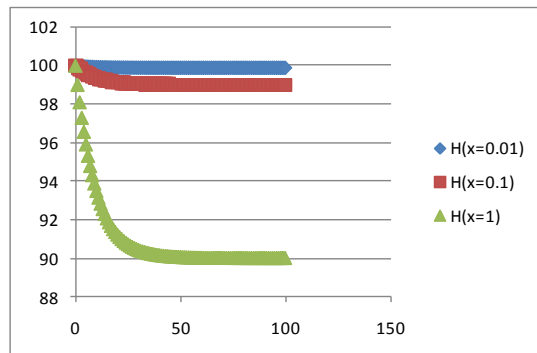
[4]



[5]

[illegible]

[6] Time Paths generated using excel

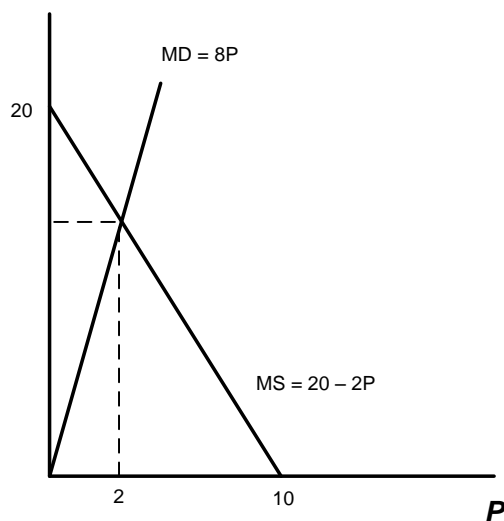


Homework #2

pg 96 #5,

(a) $MD^T = 8P$

(b)



(c) $P = 10, P^* = 2$

(d) $MWTP^T = 80 - 8A$

$MC(A) = 2A$

(e) $A^* = 8$

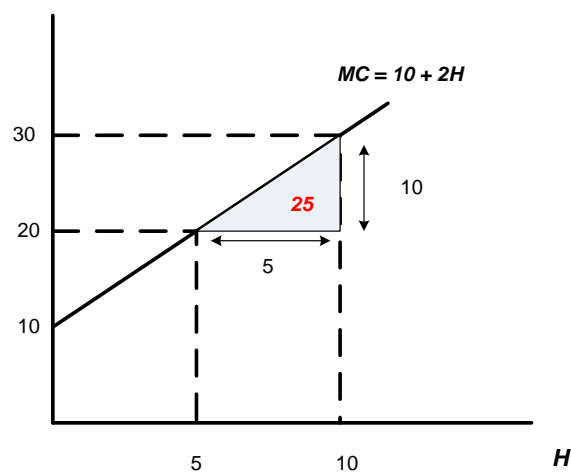
pg 114 #6,

(a) $H = 5$

(b) $H = 10$

(c) Bribe: $25 < B < 50$

(d) Transaction Costs > 25



pg 133 #5**F be Fireyear and G be Goodstone**

Total pollution emissions generated are $E_F + E_G = Q_F + Q_G$. The marginal damage of pollution is constant per unit of E at \$12

$$(a) \text{ G: } 60(30) - 500 - (30)^2 = 400$$

$$(b) \text{ Apply tax to firm's MC: } MC_{\text{NEW}} = MC + t$$

$$P = MC + t \quad F: 60 = 4Q_F + 12, \quad Q_F = 12 \quad G: 60 = 2Q_G + 12, \quad Q_G = 24$$

$$\text{Profits (after tax) } P \times Q - TC - tQ$$

$$F: 60(12) - 300 - 2(12)^2 - 12(12) = -12$$

$$G: 60(24) - 500 - (24)^2 - 12(24) = 76$$

$$(c) \text{ Profits (after subsidy, } s) \text{ } P \times Q - TC + s(Q_a - Q_b) = P \times Q - TC + sQ_a - sQ_b \text{ Where } Q_a \text{ is output from part (a) and } Q_b \text{ is output from part (b)}$$

From the book and lecture, we know optimal subsidy equals optimal tax. For every unit of output the firm adds a unit of emissions to the environment. Therefore the subsidy is a "cost" in terms of opportunity cost, thus

$P = MC + s$ is the profit max rule. Since $s = t = 12$, output under subsidy is the same as (b)

$$F: 60(12) - 300 - 2(12)^2 - 12(12) + [15 \times 12] = -12 + 180 = 168$$

$$G: 60(24) - 500 - (24)^2 - 12(24) + [30 \times 12] = 76 + 360 = 436$$

(d) *Under the tax policy, Fireyear will exit the market in the long run. Under the subsidy, both firms will remain. There may be entry into the market due to the subsidy unless there are barriers to entry.*

pg 133 #6

$$P = 10 \quad C = Q^2 \quad E = 2Q$$

$$MD = 2 \text{ per } E \quad TD = 2E = 4Q$$

$$(a) \pi = TR - TC = 10Q - Q^2 - 4Q \quad \pi' = 10 - 2Q - 4 = 0 \quad Q = 3 \quad \pi = 9$$

$$(b) Q = E \quad \pi = TR - TC = 10Q - Q^2 - 2Q \quad \pi' = 10 - 2Q - 2 = 0 \quad Q = 4 \quad \pi = 16 \quad \Delta\pi = 7$$

$$(c) Q = 5 \quad \pi = 25$$