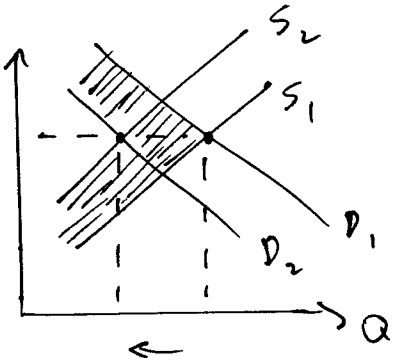
Version A

1.(a) (b)

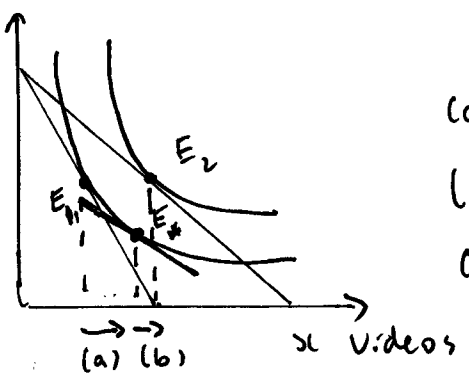


Both D and S curves shift in
Q ↓ and P could ↑ or ↓

Shaded region shows loss
in total surplus

(c) Many possible answers here, and graded accordingly.
If assistance was subsidy then welfare loss as for any subsidy.
If assistance was lump-sum transfer, then no direct welfare loss
but will be indirect welfare loss due to raising taxes to pay for subsidy.

2.(a)



E_* is old utility new prices
(a) $E_1 \to E_*$ is substitution effect
(b) $E_* \to E_2$ is income effect
(c) As drawn income effect was
videos ↑ when effective income ↑
So normal good as drawn.

3.(a) $MPP_L = \frac{dQ}{dL} = \frac{d}{dL}(5L^{.75}) = 5 \times .75 \times L^{-.25} = 3.75 \times (10{,}000)^{-.25}$

$= 3.75/10 = \underline{0.375}$

(b) MC = # units labor to produce 1 more table × cost of unit of labor

$= (MPP_L)^{-1} \times \text{wage} = (.375)^{-1} \times 100 = \underline{\$266.67}$

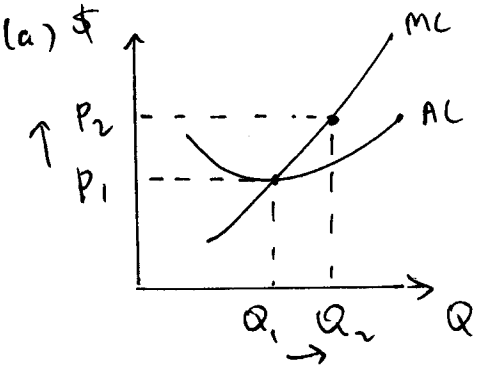
(c) First get $MRTS_{KL}$

$Q = K^{.25}L^{.75} \Rightarrow Q^4 = KL^3 \Rightarrow K = Q^4/L^3$

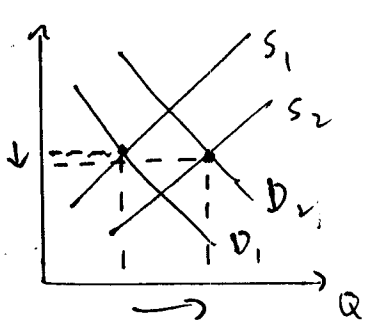
So $MRTS_{KL} = -dK/dL = 3 \times Q^4/L^4 = 3(Q/L)^4 = 3 \times \left(\frac{5{,}000}{10{,}000}\right)^4 = \frac{3}{16}$

Also $P_L/P_K = 100/300 = 1/3$. Mix is not optimal since $MRTS_{KL} \neq P_L/P_K$

Version A (cont.)

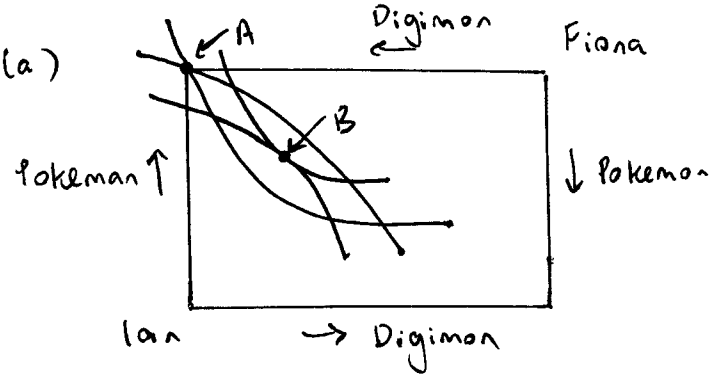
4. (a) 

Market price ↑ ⇒ Q ↑

(b) 

Q ↑ and ultimately P ↓ as decreasing costs industry

(c) Upward sloping
Each firm has upward sloping MC. As industry gets larger firms with higher min AC enter.

5. (a) 

(a) Initial allocation is A

(b) Pareto efficient allocation is B, for example. Tangent indifference curves and both better off.

(c) A Pareto efficient allocation is one where the only way to make one person better off is to make someone else worse off.

6. (a) MRS_{yx} is equated across consumers.
This happens under perfect competition as each consumer sets $MRS_{yx} = P_x/P_y$ and all consumers face the same prices.

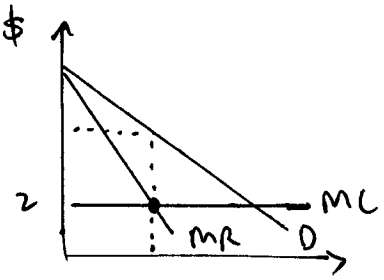
(b) $MRTS_{KL}$ is equated across producers.
Each producers sets $MRTS_{KL} = \frac{P_L}{P_K}$ and under PC all producers face the same input prices

(c) $MRT_{yx} = MRS_{yx}$

Now $MRT_{yx} = \frac{\Delta MC_x}{\Delta MC_y} = \frac{P_x}{P_y}$ under perfect competition $= MRS_{yx}$

Version A (cont.)

7.(a) $

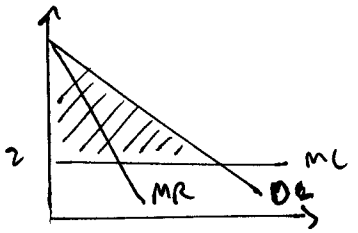


$MR = MC \Rightarrow 10 - 0.02Q = 2 \Rightarrow Q = 400$

Price is $10 - 0.01 \times 400 = 10 - 4 = 6$

Profit is $PQ - TC = 6 \times 400 - 400 \times 2 = \$1,600$

(b)



Produce until $P = MC$

$\Rightarrow 10 - 0.01Q = 2 \Rightarrow Q = 800$

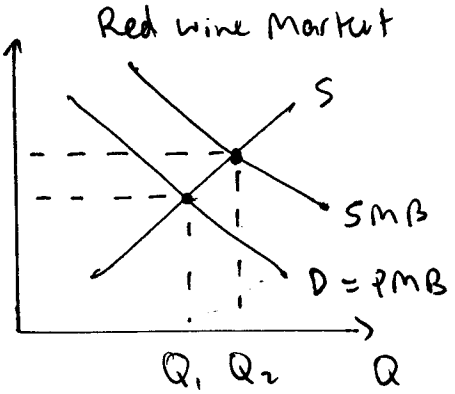
Profit = shaded area in diagram

$= \frac{1}{2} \times (10-2) \times 800 = \$3,200$

(c) Again produce until $P = MC \Rightarrow Q = 800$ (see (b))

But now no profit as sell all for \$2 each and average cost is \$2

8.(a) $



(a) Q_1 where $D = S$

(b) Social MB equals the usual D curve plus the health benefit of wine. This is SMB curve.

Q_2 where $SMB = S$

(c) ~~Subsidize wine production and public announcements~~

Subsidize wine production: pros increases surplus by moving to social optimum with $Q \uparrow$

cons govt. has to pay the subsidy

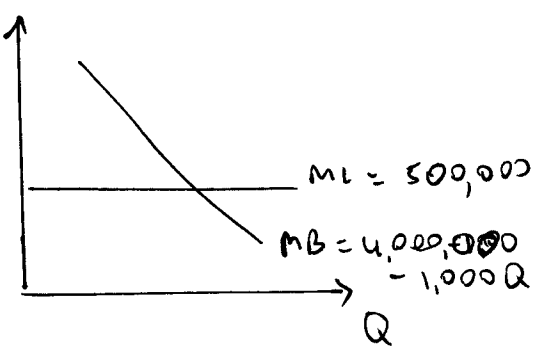
Public announcements: pros again increases consumption

cons Govt. has to pay.

Which is better? Usual approach here is to pay for advertising for public health messages, as cheaper to govt.

Version A (cont.)

9. (a) $



Note that $TC = 500,000 \times Q$
implies $MC = 500,000$.

(b) $MB = MC$

$\Rightarrow 4,000,000 - 1,000Q = 500,000$

$\Rightarrow 1,000Q = 3,500,000$

$\Rightarrow Q = 3,500$ beds

(c) No. Consumption here is rival as one person's use of a hospital bed prevents another from using it.
Or consumption here is excludable so could be privately provided.

Multiple Choice — Done Poorly. Median 14/26

Ques	Version A	Version B	
1	d	b	Definitional
2	d (4.0)	b ($\frac{2}{3}$)	$\varepsilon = -\frac{dx}{dp} \times \frac{p}{x} = 4 \times \frac{p}{x}$ etcetera
3	a	a	
4	c (7.0)	b (1.0)	$MC = P \Rightarrow 10Q + 30 = P$ etcetera
5	c	c	K ↑ due to factor substitution but K↓ due to scale
6	a	b	Fred's MRS_{cr} will ↑ if roses ↓
7	d	d	Note that perfect competition ⇏ equity
8	b	a	
9	a	c	Since $MC = MR$ and $MR = P(1 - \frac{1}{\varepsilon})$
10	c	d	Both problems are arise - they are closely related.
11	d	c	Property rights aren't assigned. Instead govt. permits a certain amount of pollution and the permits can be traded. Tough question.
12	b	b	
13	a	d	This is the usual private good of basic demand eg hamburger.

Version B

1. Same as version A

2. Similar to version A except price increase not decrease

3. Wage changed to $200 from $100

(a) Same (b) $MC = (MPL_L)^{-1} \times \text{wage} = (.375)^{-1} \times 100 = \$533.34$

(c) Same $MRTS_{LK} = 3/16$. Also $P_L/P_K = \frac{200}{300} = \frac{2}{3}$. Again not optimal.

4 - 6. Same as version A

7. (a) $MR = MC \Rightarrow 18 - 0.02Q = 2 \Rightarrow Q = 800$

Price is $18 - 0.01 \times 300 = 18 - 3 = 6$

Profit is $PQ - TC = 6 \times 800 - 800 \times 2 = \$1,600$

(b) Produce until $P = MC \Rightarrow 18 - 0.01Q = 2 \Rightarrow Q = 800$

Prof.t = triangle area $= \frac{1}{2} \times (18-2) \times 800 = \$3,200$

(c) Again produce until $P = MC \Rightarrow Q = 800$ (see (b))

But now no profit as sell all for $2 each and average cost is $2

8. See version A

9. (b) $MB = MC \Rightarrow 3,000,000 - 1,000Q = 500,000$

$\Rightarrow 1,000Q = 2,500,000$

$\Rightarrow Q = 2,500$ beds

(b) See version A

Out of 80

75th percentile	56	A- or better	61 or better
Median	47.5	B- " "	54 " "
25th percentile	40	C- " "	47 " "
		D- " "	40 " "