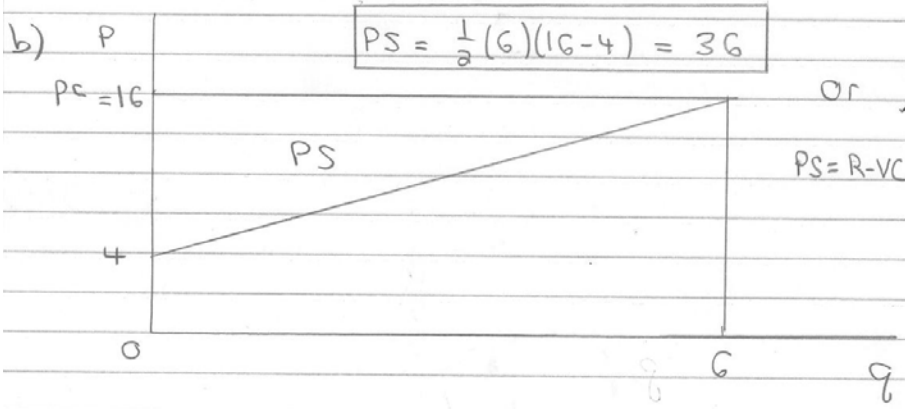
Econ 520 Fall 2005
Final Exam Version A
Problems

1. $MC(q) = 4 + 2q$ and $AVC(q) = 4 + q$

a) Set $P = MC \Rightarrow 16 = 4 + 2q \Rightarrow \boxed{q^{c*} = 6}$

The firm would not change its profit-maximizing level of output in response to a decrease in its fixed costs.

b) $\boxed{PS = \frac{1}{2}(6)(16-4) = 36}$



or,

$PS = R - VC = 6 \times 16 - 60 = 36$

c) $\pi = 24 = 6(16-10) - F \Rightarrow F = 12$ and $\boxed{AFC = \frac{12}{6} = 2}$

d) The firm will produce a positive level of output for any price above the minimum of the $AVC(q)$. With $P = 4$, the market price is equal to the minimum of the $AVC(q)$. Hence, the firm's profit-maximizing level of output is $\boxed{q^{c*} = 0.}$

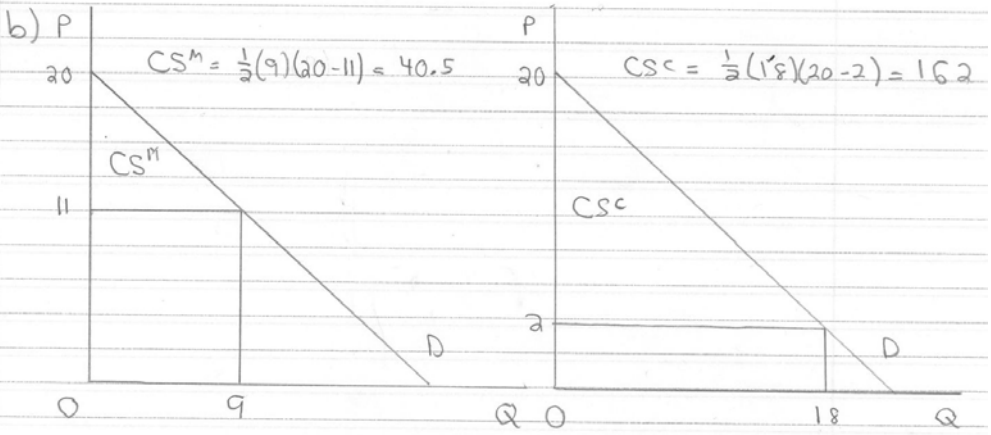
2. $Q = 20 - P \Rightarrow P = 20 - Q$

a) Set $MR = MC \Rightarrow 20 - 2Q = 2 \Rightarrow$ $\boxed{Q^M = 9 \quad P^M = 11}$

$$\pi = \underbrace{(9 \times 11)}_{R} - \underbrace{(9 \times 2)}_{VC} - \underbrace{(9 \times 4)}_{FC} = 45$$

Since $Q^M \times AFC = 9 \times 4 = 36$

b)



$\Delta CS = CS^C - CS^M = 162 - 40.5 = +121.5$ This represents the amount by which consumers are better off under competition vis a' vis monopoly

c) $Q = \frac{1}{n^2} \min\{k, L\} \Rightarrow C(Q) = [1+1]\,Q^{\frac{1}{n^2}} = 2n^2 Q$

	n	P	
Monopoly	1	11	Monopoly & Set $MR = MC \Rightarrow 20 - 2Q = 2 \Rightarrow Q^M = 9$; $P^M = 11$
Competition	2	8	Competition & $P = MC$
	3	18	

Consumers would choose $\boxed{n = 2}$ because it yields the lowest price