HW4 SAMPLE PROBLEM SOLUTIONS

I $f(x) = x^2 + 3x \quad g(x) = -x + 2$

1. $(f+g)(1) = f(1) + g(1) = (1^2 + 3\cdot 1) + (-1+2)$
   $= 4 + 1 = 5$
2. $(g-f)(2) = g(2) - f(2) = (-2+2) - (2^2 + 3(2))$
   $= 0 - (4+6) = -10$
3. $g(-3) = -(-3) + 2 = 5$
4. $f(-1) = (-1)^2 + 3(-1) = 1 - 3 = -2$
5. $f(-2) = (-2)^2 + 3(-2) = 4 - 6 = -2$
6. $(f/g)(0) = \frac{f(0)}{g(0)} = \frac{0}{2} = 0$
7. $(g/f)(0) = \frac{g(0)}{f(0)} = \frac{2}{0}$ UNDEFINED

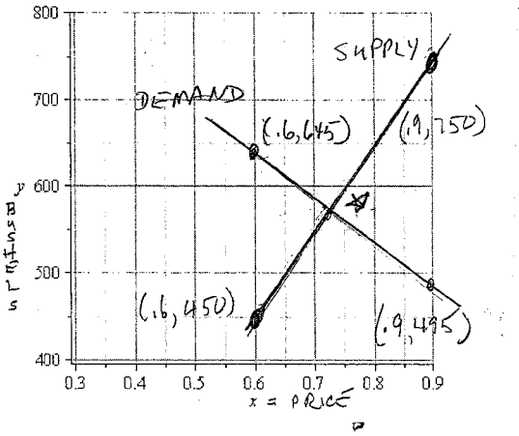
II $g(x)$, $f(x)$ from graph

1. $f(1) + g(1) = (f+g)(1) = -2 + 4 = 2$
2. $f(2) + g(-1) = 0 + 0 = 0$
3. $f(0) \cdot g(0) = 0 \cdot 1 = 0$
4. $f(\frac{1}{2}) / g(\frac{1}{2}) = -1/2 = -\frac{1}{2}$

III $C(x) = 7 - x \quad R(x) = 5x - x^2$

1. $\$ = 5x - x^2 - (7 - x) = 5x - x^2 - 7 + x$
   $= -x^2 + 6x - 7$
2. $C(2) = 7 - 2 = 5 \quad R(2) = 5\cdot 2 - 2^2$
   $= 10 - 4 = 6$
3. $R(2) - C(2) = 6 - 5$
   $\therefore$ PROFIT

IV



EQUILIBRIUM POINT *

(.73, 575)
APPROXIMATELY