

## Solution to some math questions of HW that is due on Feb 16<sup>th</sup>

P 121

1. a. 28;    b. surplus 6;    c. producer surplus increase;

P 129

1. Without minimum wage, in market eq, let  $L^D = L^S$ , then  $100 - 4W = 6W$ , get  $W^* = 10$ , and  $L^* = 60$ .

With minimum wage,  $L^D = 100 - 4 * 12 = 52$ ,  $L^S = 6 * 12 = 72$ , there will be a surplus of 20.

3. the vertical intercept of demand curve is  $P = 22.5$  (let  $Q_d = 0 = 45 - 2P$ );

the intercept of supply curve is  $P = 15$  (let  $Q_s = 0 = -15 + P$ );

In market Eq, let  $Q_d = Q_s$ ,  $45 - 2P = -15 + P$ , get  $P = 20$ , then  $Q_d = Q_s = 5$

By the formula for area of triangle

$$CS = 0.5 * 5 * (22.5 - 20) = 6.25$$

$$PS = 0.5 * 5 * (20 - 15) = 12.5$$

P 150

11. a.  $3.875\% * 1000 = 38.75$ ;

b.  $91.047\% * 1000 = 910.47$

- c. unknown (we could only know that of a 10-year U.S. treasury bill)

P 160

1.  $PV = \frac{85}{(1+10\%)} + \frac{1085}{(1+10\%)^2} = 77.27 + 896.69 = 973.96$

3. b.  $PV = \frac{4.1}{(1+10\%)^1} + \frac{6.6}{(1+10\%)^2} + \frac{7.6}{(1+10\%)^3} + \frac{1.6}{(1+10\%)^4} + \frac{1.6}{(1+10\%)^5} = 16.98$

c.  $PV = \frac{4.1}{(1+5\%)^1} + \frac{6.6}{(1+5\%)^2} + \frac{7.6}{(1+5\%)^3} + \frac{1.6}{(1+5\%)^4} + \frac{1.6}{(1+5\%)^5} = 18.21$