SECOND TEST. ECON 235, FALL 2013.   NAME: _____

Answer in the space provided. Show correct work for full credit. Box your final answers.

1. Monopsony. My sweatpants-making company, JamesCorp, has a marginal revenue product of labor function $MRP_L = 30 - \frac{1}{3}L$, and faces an upward-sloping labor supply curve defined by the marginal cost of labor function $MC_L = 6 + \frac{1}{3}L$, where L is the number of people I employ. I have to pay all of my workers the same hourly wage (w), or they'll all revolt against me.

a) In order to maximize my profit, I should offer a wage of $w =$_____ and hire $L =$_____ people. In this case, my firm surplus is $FS =$_____, and the workers' surplus is $WS =$_____, so the total economic surplus is $TES =$_____.

b) On the graph to the right, draw and label the MRP_L, MC_L, and ME_L curves. Also, use different colors or shading patterns to indicate firm surplus, worker surplus, and deadweight loss (DWL).
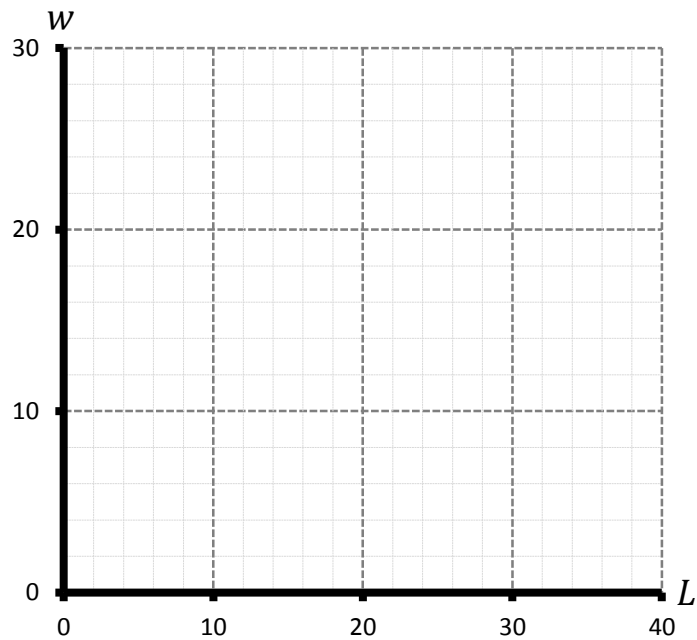
c) If there were a minimum wage of $\bar{w} = 18$ per hour, it would be profit-maximizing for me to offer a wage of 18 and hire $L =$_____ people. In this case, my firm surplus would be _____, and the workers' surplus would be _____, so the total economic surplus would be _____.

d) If there were a minimum wage of $\bar{w} = 24$ per hour, it would be profit-maximizing for me to offer a wage of 24 and hire $L =$_____ people. In this case, my firm surplus would be _____, and the workers' surplus would be _____, so the total economic surplus would be _____.

2. The life cycle and labor supply. Suppose that my life can be divided into two distinct time periods, period 1 and period 2. Defining e_1 as leisure in period 1, e_2 as leisure in period 2, and c as total lifetime consumption, my preferences can be represented by the utility function $U = e_1 e_2 c^3$. Suppose a simple budget constraint of $c = (1 - e_1)w_1 + (1 - e_2)w_2 + k$, where w_1 is my wage rate in period 1, w_2 is my wage rate in period 2, and k is my non-labor income.

a) Find the functions $c(w_1, w_2, k)$, $e_1(w_1, w_2, k)$, and $e_2(w_1, w_2, k)$, which give my optimal consumption, period 1 leisure, and period 2 leisure, as they depend on both wage rates and non-labor income. Don't forget to box your final answers here.

b) Explain how you reached the answer above, and why your approach makes sense.

b) Find my optimal e_1, e_2, and c if $w_1 = 100$, $w_2 = 50$, and $k = 0$.

c) In which time period do I work more? Explain why this is intuitive.

d) Explain the income and substitution effects of an increase in w_1 on my optimal e_1, e_2, and c.

e) Explain the income and substitution effects of an increase in k on my optimal e_1, e_2, and c.

3. Supply of risky labor. I have the (expected) utility function $U = w - 10r^{3/2}$, where w is the wage I receive, and r indicates the level of workplace risk I experience. I work for one of many perfectly competitive firms that have the per-worker profit function $\Pi = 120r^{1/2} + 100 - w$. Since these firms are perfectly competitive, they pay me a wage such that they make zero profit from hiring me, and I can choose my level of workplace risk.

a) Find my wage as a function of workplace risk.

b) Find the level of workplace risk I would choose to maximize my expected utility.

c) If I choose the risk level from part (b), find my wage w and utility U.

d) With r on the horizontal axis and w on the
vertical axis, sketch the firm's isoprofit curve
and my indifference curve at the agreed-on
wage-risk combination, to the right here →

d) Find my new wage and expected utility if the government makes it illegal for any workplace to have a risk level above $\bar{r} = 1$, but everything else remains the same as above.

e) Identify two strong assumptions in this model (as developed in chapter 8 of the Ehrenberg-Smith text), and explain why dropping each assumption could lead to different conclusions about the wisdom of workplace safety regulations.

4. Comparative advantage. Pat and Chris are partners. In a given hour, Pat can either make $24 at work, or do 12 chores around the house. Likewise, Chris can either make $16 at work, or do 4 chores around the house.

a) Who has an absolute advantage in what?

b) Who has a comparative advantage in what?

c) What trades of money for household chores might be mutually beneficial for Pat and Chris?

5.