Name:

Econ 101 Practice Test #3

1. A bike repair shop has the following production function:

| # of Workers	Bike Repairs per Hour	Marginal Product of Labor	Marginal Revenue Product of Labor ($20)	Marginal Revenue Product of Labor ($50)
0	0	xxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxx
1	3			
2	5			
3	6			

    a. Complete the marginal product of labor column above **(1.5 pts)**

    b. Complete the marginal revenue product of labor columns assuming bike repairs cost $20 each for one column and $50 each for the other. **(1.5 pts)**

    c. There are three qualified bike repairmen in the area, with reservation wages as follows:

Name	Reservation Wage
Jake	$30
Kyle	$40
Lana	$50

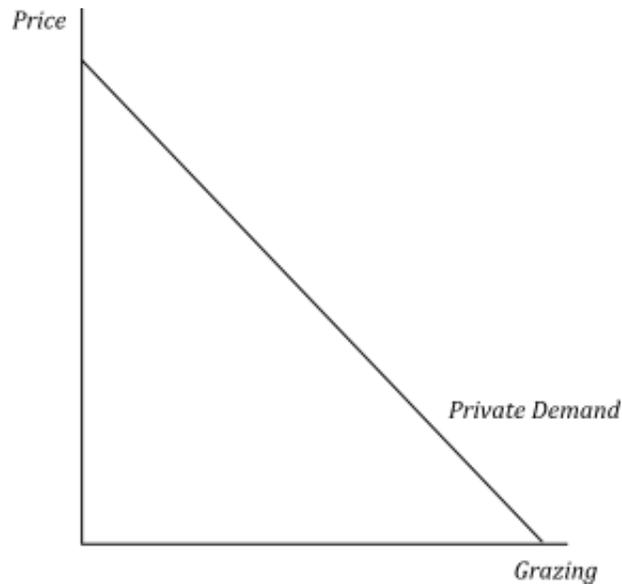If repairs cost $20 each, how many workers are hired, and at what wage? **(1.5 pts)**

    d. If repairs cost $50 each, how many workers are hired, and at what wage? **(0.5 pts)**

2. Consider the markets for labor. Suppose the government institutes unemployment benefits.

Wage

Labor Supply

Derived Demand
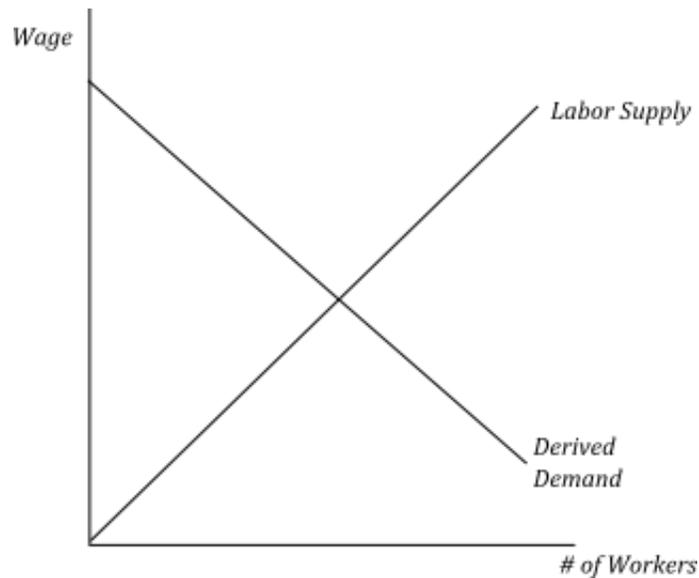
# of Workers

    a. Consider how this policy may impact labor supply. Circle the words that make the following sentences correct: **(2 pts)**
        i. Unemployment benefits will make it *less / more* painful to be unemployed, which will *raise / lower* workers' reservation wage.
        ii. This will shift the labor supply curve to the *right / left*.
        iii. This will cause wages to *rise / fall / change by an indeterminate amount*, and the number of employed workers to *rise / fall / change by an indeterminate* amount.

    b. Now consider how this policy may impact the derived demand for labor. Circle the words that make the following sentences correct: **(2 pts)**
        i. Unemployment benefits will *increase / decrease* the income of unemployed people, which will *increase / decrease* the demand for goods produced by firms (assuming goods are normal).
        ii. This will shift the derived demand curve to the *right / left*.

    c. Assume the labor supply curve shifts the direction you indicated in part a(ii) and the derived demand curve shifts the direction you indicated in part b(ii). Circle the words that make the following sentence correct: **(1 pt)**
        i. Unemployment benefits will cause the wage to to *rise / fall / change by an indeterminate amount*, and the number of employed workers to *rise / fall / change by an indeterminate* amount.

3. Suppose Peter is participating in a *second price sealed bid* auction for a car. He bids $20,000, which is equal to his willingness-to-pay (WTP). This is the optimal strategy in a second-price sealed bid auction.

    a. If the second-highest bid is $15,000, what is John's *consumer surplus* (remember, this is equal to his WTP minus price paid, if he wins, and 0 otherwise)? **(0.5 pts)**

    b. If Peter decreases his bid to $15,001, what is his consumer surplus? **(0.5 pts)**

    c. If Peter decreases his bid to $14,999, what is his consumer surplus? **(0.5 pts)**

    d. Does Peter have any reason to reduce his bid? Why or why not? **(1 pt)**

    e. If the highest bid is $25,000, what is John's consumer surplus? **(0.5 pts)**

    f. If Peter increases his bid to $25,001, what is his consumer surplus? **(0.5 pts)**

    g. If Peter increases his bid to $24,999, what is his consumer surplus? **(0.5 pts)**

    h. Does Peter have any reason to increase his bid? Why or why not? **(1 pt)**

4. Suppose JK Rowling decides to write another Harry Potter book. There are 50 million diehard Harry Potter fans with a willingness-to-pay of $35 for the new book, and 100 million fans with a willingness-to-pay of $15 for the new book. Suppose books have a constant marginal cost of $5.

   a. How much profit will the publisher make if it charges $15 per book? **(1.5 pts)**

   b. How much profit will the publisher make if it charges $35 per book? **(1.5 pts)**

   c. How much profit would the publisher make if it could charge $35 to diehard fans and $15 to the rest? **(1.5 pts)**

   d. What's a way the publisher can distinguish between diehard fans and others? **(1.5 pts)**

5. When a person gets a vaccine (for example, a flu vaccine), there is a benefit to the individual, since they are less likely to catch the disease. There is as an additional benefit to society, since unvaccinated people are less likely to get diseases if they live where many other people are vaccinated. Suppose each person who is vaccinated gives a benefit to society equivalent to $25.

    a. In the absence of government intervention, will the market lead too many to be vaccinated, too few people, or the correct amount of people, relative to the social optimum, and why? **(2 pts)**

    b. Suppose the government decides to subsidize vaccines. What should the subsidy be, in order to obtain the social optimum and how will this help move the market to the social optimum? **(2 pts)**

    c. What is another intervention the government could do to address this externality? **(1 pt)**

6. The following diagram depicts the demand for grazing on the common pasture. Since the pasture is common, the supply curve is just a horizontal line at zero.

Price

Private Demand

Grazing

   a. Label above as q_0 the amount of grazing conducted, if individuals do not take into account the social cost of grazing. **(1 pt)**
   b. Grazing reduces the ability of the pasture to grow back, so that the true cost of grazing is greater than zero. Indicate on the diagram above a "true" supply curve of grazing. **(1.5 pts)**
   c. Using your "true" supply curve, indicate the socially optimal level of grazing, labelled as q_1. **(1 pt)**
   d. Name one way the government can achieve the socially optimal grazing level. **(1.5 pts)**

7. A small town is thinking about putting on a carnival. Each family in town values the marginal carnival ride as follows:

Family	First ride	Second Ride	Third Ride	Fourth Ride
Smiths	$50	$45	$40	$35
Li's	$25	$15	$5	$0
Rivera's	$100	$50	$25	$12
Total	$175	$110	$70	$47

a. If every additional ride costs $60, and the carnival must be financed by an individual on their own, how many rides will the carnival have? **(1 pt)**

b. Who will pay for the carnival? Which families are free riding? **(2 pts)**

c. What is the socially optimal number of rides? **(1 pt)**

d. Suppose there is a local restaurant that can sponsor the carnival. By sponsoring the carnival, the restaurant expects to receive the following advertising benefits:

	First ride	Second Ride	Third Ride	Fourth Ride
Restaurant	$80	$60	$40	$20

How many rides will the carnival have, if paid for by the sponsor? Is this optimal? **(1 pt)**

8. Consider the following supply and demand diagrams, where the government has imposed the tax indicated on producers:
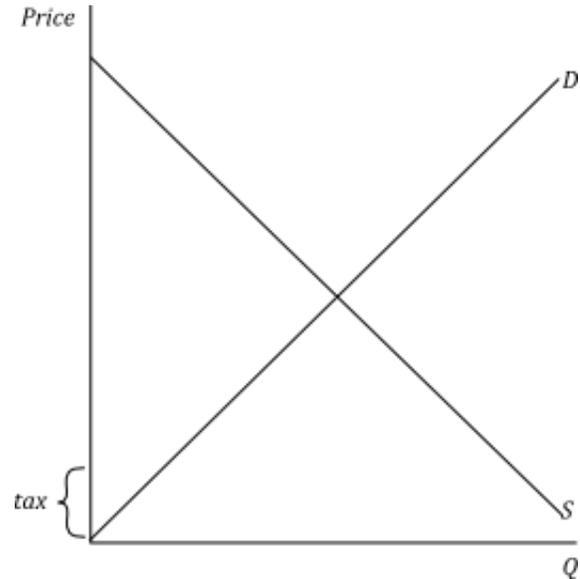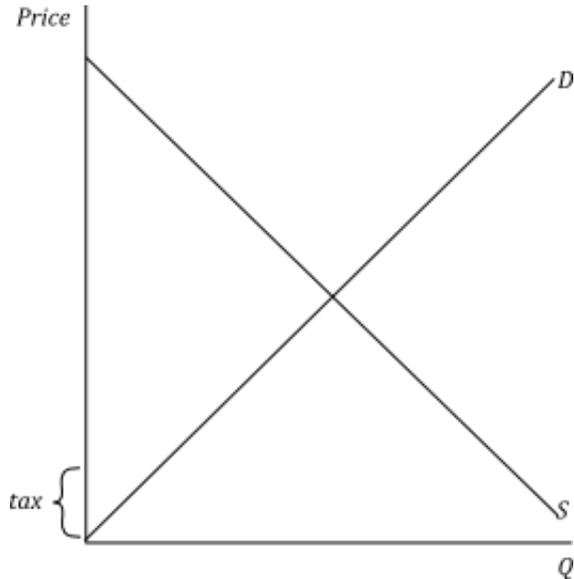
a. Draw on each diagram the supply curve that includes the cost of taxation. **(2 pts)**
b. Indicate on the left diagram the price paid by consumers, called p_C and the *after tax* amount received by firms, called p_F **(1 pt)**
c. Indicate on the left diagram the share of the tax paid for by the consumers and the share paid for by firms **(2 pts)**
d. On the right diagram, shade in the tax revenue with vertical lines such as ||||. **(1 pt)**
e. On the right diagram, shade in the consumer surplus, if there is any, with diagonal lines such as \\\\. **(1 pt)**
f. On the right diagram, shade in the producer surplus, if there is any, with backwards-diagonal lines such as //////. **(1 pt)**
g. On the right diagram, shade in the deadweight loss, if there is any, with horizontal lines, such as =. **(1 pt)**

9. Suppose the marginal tax schedule is as follows:

Percent Owed	Marginal Income
10%	$0-20,000
25%	$20,001-$100,000
50%	$100,001+

a. John makes $20,000 a year, and has a tax bill of 10%. He is worried that if he works overtime he'll be pushed into the middle tax bracket, so that he will have to pay 25% instead of 10%, so that, taken as a whole, he will make *less* money by working overtime. What's wrong with John's thinking? **(2 pts)**

b. How much does someone making $60,000 owe? **(1 pt)**

c. How much does someone making $150,000 owe? **(1 pt)**

d. Is this tax schedule progressive or regressive and why? **(1 pt)**