In addition to the questions below, answer review questions 4 and 7.

Problems
1. One part of the Ohio welfare system is called “Ohio Works First”. The program provides cash assistance for families depending on the number of dependents in the family and the family’s earnings. For example, a single mother with two children is eligible for cash assistance if her earnings are at or below $630. If eligible for benefits, she will receive $630 minus an adjustment factor that equals one-half of any labor earnings above the exemption of $250 per month. For example, a woman who earns $250 or less will be entitled to a monthly benefit of $630. A woman who earns $500 per month would receive $630-$125=$505. A woman earning more than $630, however, is not eligible for benefits.

To illustrate the effect of this program, consider the budget constraint drawn below for Mary. The budget constraint is drawn to reflect her job opportunities with no welfare program.

![Budget Constraint](image)

Based on the budget constraint,

a. what is Mary’s wage rate? ______________

b. what is Mary's nonlabor income? __________

c. On top of the above diagram, draw the budget constraint created by the introduction of the OWF program. For full credit, you should label the numeric values of hours and income levels associated with any “critical points” on the budget constraint. Be sure that you label the new budget constraint so that it is easy to identify.

d. Based on the diagram you drew, what range of hours would NOT be chosen by Mary if she has the opportunity to draw OWF benefits? Explain.
2. Consider the budget constraint for Joe given below to answer the questions that follow.

a. What is Joe’s hourly wage and non-labor income?
   Wage = $10 per hour; Non-labor income = $100 per week.

b. On the budget graph above, draw a budget line representing the following unemployment insurance program assuming that Joe previously worked 40 hours per week and becomes unemployed. Provide numeric detail for earnings and hours associated with key points on the new budget line.
   Upon being laid off, the worker will receive an unemployment insurance check that replaces 50% of her prior labor earnings. If he accepts a new job and earns up to 1/2 of prior earnings, the unemployment insurance check is not reduced. If he accepts a new job and earns more than 1/2 of prior earnings, the unemployment insurance check is eliminated.

c. Refer to your budget constraint above to describe the range of hours worked that would be inconsistent with utility maximization. Why would working in this range be “irrational”?

d. Suppose that the program is adjusted so that the unemployment insurance benefit is reduced by $.50 for every $1 earned. Draw Joe’s budget constraint for this system on the diagram above. Provide numeric detail to illustrate “key” points on the budget line.

e. Would the change in the UI program described in (d) cause a person to work more or less hours? Why? (If the answer depends on how much they worked under the old program, explain how and be sure to describe the income and/or substitution effects that are relevant).
3a. Draw a budget constraint for Mary assuming that she can have between 0 and 112 hours of leisure per week, $100 of weekly nonlabor income, and a wage offer of $10 per hour.

b. Draw a second budget line for John which assumes the same wage rate and nonlabor income, but assume that John has to spend 5 hours per week in commuting time if he chooses to work.

c. Assuming the same preferences for John and Mary, what predictions would you make regarding the difference in their work hours? Explain.

4. Use a budget constraint to illustrate how elimination of the “earnings test” in Social Security was likely to affect labor supply behavior of the elderly. Refer to income and/or substitution effects to describe the likely changes in work hours for different types of workers.

5a. Use a budget constraint and indifference curve to explain how an increase in commuting time would affect:
   i. labor force participation
   ii. hours worked among those that work
b. Explain how increased commuting might affect retirement age.