Multiple choice Answers: 1a, 2c, 3b, 4a, 5a, 6b, 7c, 8a, 9d, 10b, 11a, 12b, 13c, 14a, 15b, 16b, 17a, 18d, 19b, 20a, 21b, 22b, 23c, 24b.

Answers to Even-Numbered Review Questions (odd numbered are answered in text).

2. Evaluate the following quote: “Higher take-home wages for any group should increase the labor force participation rate for that group.”

Answer. This quotation is correct, because for labor force participation decisions, the substitution effect dominates the income effect. The strength of the income effect is relatively weaker when the initial hours of work are smaller. When initial hours of work are zero – as is the case when a person is out of the labor force – then the income effect is zero if leisure is a normal good (increased resources cannot induce one to increase the consumption of leisure, since leisure hours are already at their maximum).

4. The way the workers' compensation system works now, employees permanently injured on the job receive a payment of $X each year whether they work or not. Suppose the government were to implement a new program in which those who did not work at all got $0.5X but those who did work got $0.5X plus workers' compensation of 50 cents for every hour worked (of course, this subsidy would be in addition to the wages paid by their employers). What would be the change in work incentives associated with this change in the way workers' compensation payments are calculated?

Answer: This change in workers' compensation has two effects. First, it reduces the subsidy for people who do not work from $X to $0.5X. This reduction in income by itself would produce an income effect that tends to induce the injured worker to work more (he or she is poorer if not working than under the previous workers' compensation system). On the other hand, for those who work, the wage rate is increased by 50 cents an hour. (We assume here that the change in workers' compensation payments is not so large as to influence market wages.) The increased wage by itself would tend to induce injured workers to work more because the cost of leisure has risen by 50 cents an hour; however, the eventual outcome is theoretically unclear.

The effects of these changes can be seen in the figure below.
Along segment DE there is a clear-cut strengthening of work incentives. Segment DE has a steeper slope than the previous budget constraint (BQ and it also lies to the southwest of BC. Thus, along segment DE there is a substitution effect inducing more work and an income effect that also induces more work. To the left of point E, however, along segment EF, there are income and substitution effects that work in opposite directions. Along segment EF the 50-cents-an-hour increase in the wage rate is sufficient to increase the injured worker's income under workers' compensation, thereby creating an income effect that reduces work incentives, other things equal. However, the substitution effect of the increased wage continues to exert an increase in work incentives and the outcome of the two effects is not predictable in advance.

Thus, if the tangency point between the worker's indifference curve and the full budget constraint used to be along BC but to the right of point E, the worker faces a clear-cut strengthening of work incentives under the new program. If, however, the worker's tangency point along BC was to the left of point E, the new program would have an unpredictable effect on work incentives.

6. Suppose the Social Security disability insurance (DI) program was structured so that otherwise eligible recipients lost their entire disability benefit if they had any labor market earnings at all. Suppose, too, that Congress was concerned about the work disincentives inherent in this program, and that the relevant committee was studying two alternatives for increasing work incentives among those disabled enough to qualify for it. One alternative was to reduce the benefits paid to all DI recipients but make no other changes in the program. The other was to maintain the old benefit levels (for those who receive them) but
allow workers to earn $300 a month and still keep their benefits. Those who earn over $300 per month would lose all DI benefits.

Analyze the work incentive effects of both alternatives. (The use of graphic analyses will be of great help to you.)

**Answer:** The proposal to reduce the average DI benefit may cause recipients to seek work or it may not, depending on their preferences and the extent of the cut. Compare, for example, cases a, b, and c below.

<table>
<thead>
<tr>
<th>Income</th>
<th>(a) No Work, Either Program</th>
<th>Income</th>
<th>(b) Increased Work Incentives</th>
<th>Income</th>
<th>(c) No Change in Work Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leisure Hours</td>
<td>A</td>
<td>Leisure Hours</td>
<td>A</td>
<td>Leisure Hours</td>
<td>A</td>
</tr>
<tr>
<td>(AC = old benefit; AB = new benefit)</td>
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<td></td>
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</tbody>
</table>

The proposal to allow DI recipients to keep their benefits until a certain earnings level is reached will induce some of those now not working to work at least a little (case d). Others may have preferences that preclude work (case e). However, some of those who medically qualify for DI but would now work may decide to cut their hours of work (case f). Thus, it is not clear from theory which proposal would have the stronger work incentives.

8. The Tax Reform Act of 1986 was designed to reduce the marginal tax rate (the tax rate on the last dollars earned) while eliminating enough deductions and loopholes so that total revenues collected by the government could remain constant. Analyze the work incentive effects of tax reforms that lower marginal tax rates while keeping total tax revenues constant.
Answer: Reducing the marginal tax rate has the effect of increasing the wage rate, because workers are allowed to keep more from any extra hours worked. Keeping tax revenues constant suggests that workers' after-tax incomes also remain constant. Thus, the Tax Reform Act tended to increase the wage while keeping workers' incomes constant -- creating a pure substitution effect that tended to increase hours of work.

Answers to Even Number Problems.

2. Nina is able to select her weekly work hours. When a new bridge opens up, it cuts one hour off Nina's commute to work. If both leisure and income are normal goods, what is the effect of the shorter commute on Nina’s work time?

Answer. When the new bridge opened, Nina’s budget constraint shifted to the right in a parallel fashion as the amount of available time for either work or leisure (as opposed to commuting) was increased. This shift in her constraint created an income effect (she can now work more and consume more leisure). Because both income and leisure are normal goods, both would increase. The only way income can increase in this case is for her to work more, so we must conclude that her extra hour per day from the shorter commute is divided in some way between more work and more leisure. Therefore, she works more.