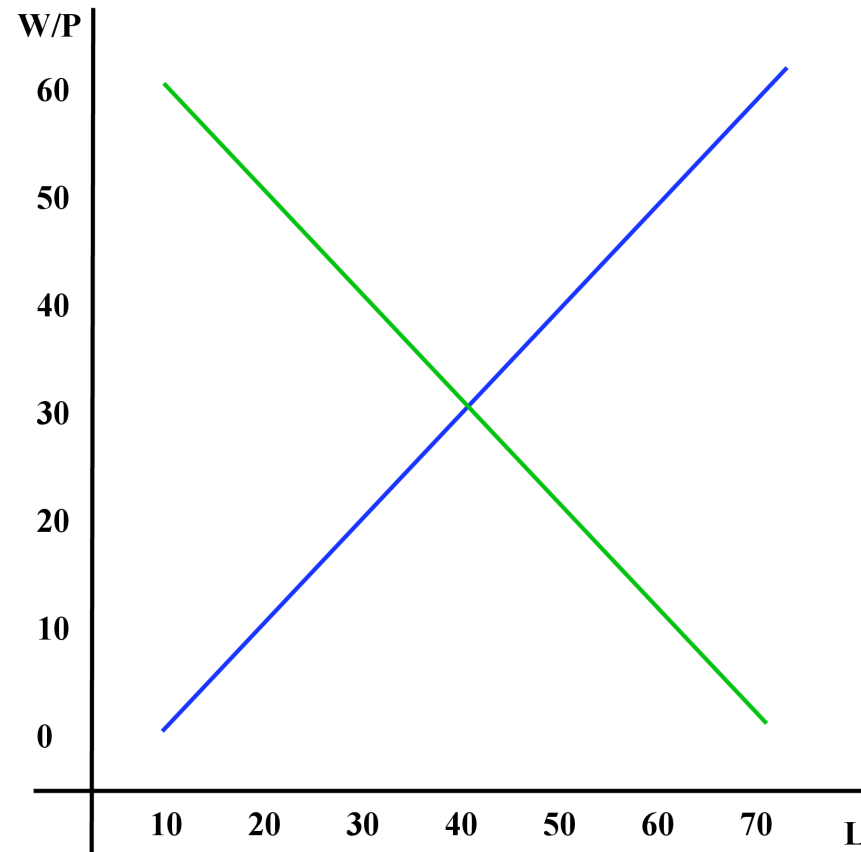**Problem 1.** Using the labor market graph below, find the equilibrium real wage and laborers. (Answers will be "nice.") If frictional unemployment is 10%, how many unemployed workers are there?

Answer 1.   Here we see that the equilibrium real wage is 30 and equilibrium labor is 40. Since the economy here is in equilibrium, there is no cyclical unemployment and there is no structural unemployment. Hence all unemployment is frictional (which is present even at equilibrium!). Therefore the labor force of 40 has $10\% \times 40 = 4$ frictionally unemployed workers.
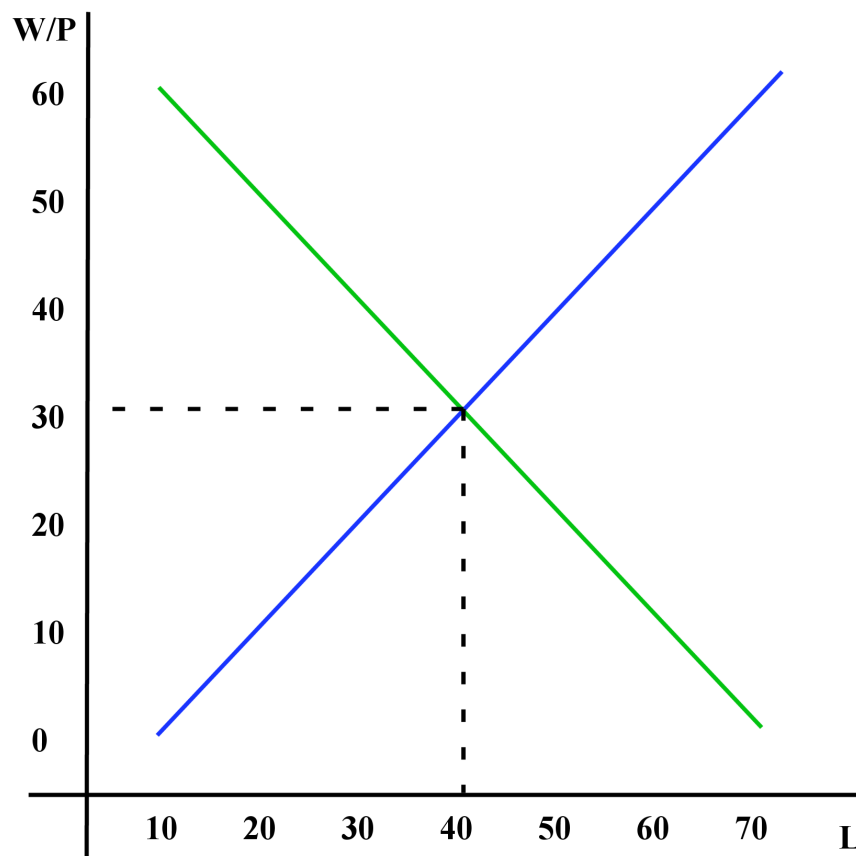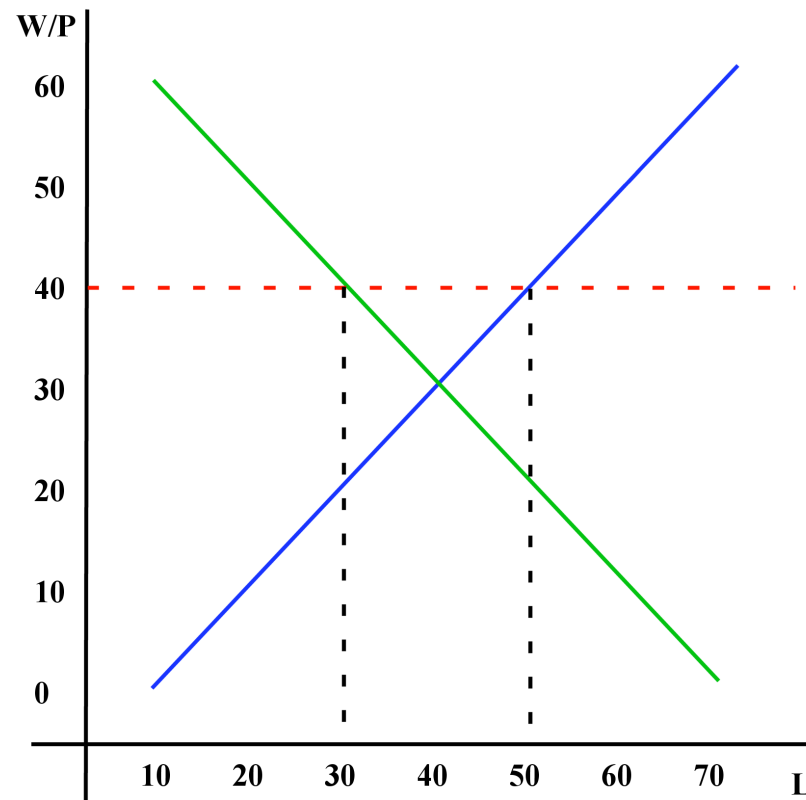
Problem 2. Now suppose the government imposes a minimum real wage of 40. Find the number of structurally unemployed workers, the number of overall unemployed workers, and the overall unemployment rate.
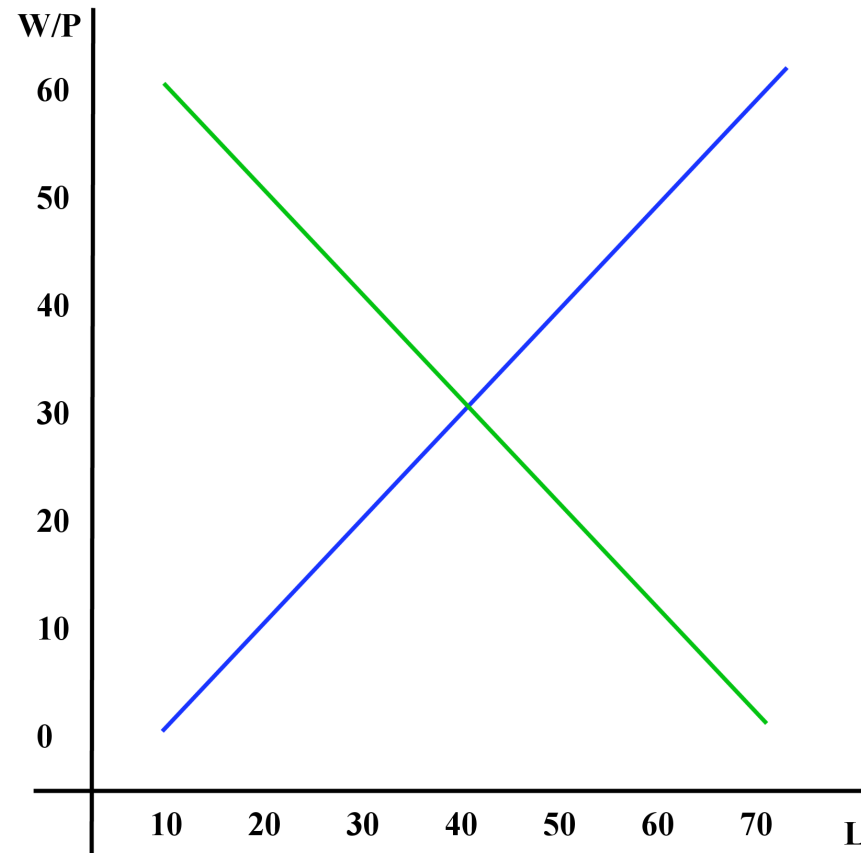
Answer 2.   The minimum real wage of 40 is higher than the equilibrium real wage, so the economy cannot go to equilibrium. At the real wage of 40, firms want 30 workers but 50 workers want jobs. Hence there are $50 - 30 = 20$ structurally unemployed workers.

There is no mention of a recession or expansion, so cyclical unemployment is still zero. Since frictional unemployed was found to be 4 workers, the total number of unemployed workers is $20+4 = 24$. The labor force is 50, and therefore the overall unemployment rate is $24/50 = 48\%$.

Problem 3. Suppose the minimum wage is still present. Now suppose a recession hits the economy and real GDP falls. As a result, people buy less stuff, so in order to get people to buy more stuff again, firms lower their prices. Nominal wages are rigid, so W/P goes *up* to 50. (Thus the real wage is counter-cyclical here.)

Find the number of cyclically unemployed workers, total unemployed workers, and the overall unemployment rate.
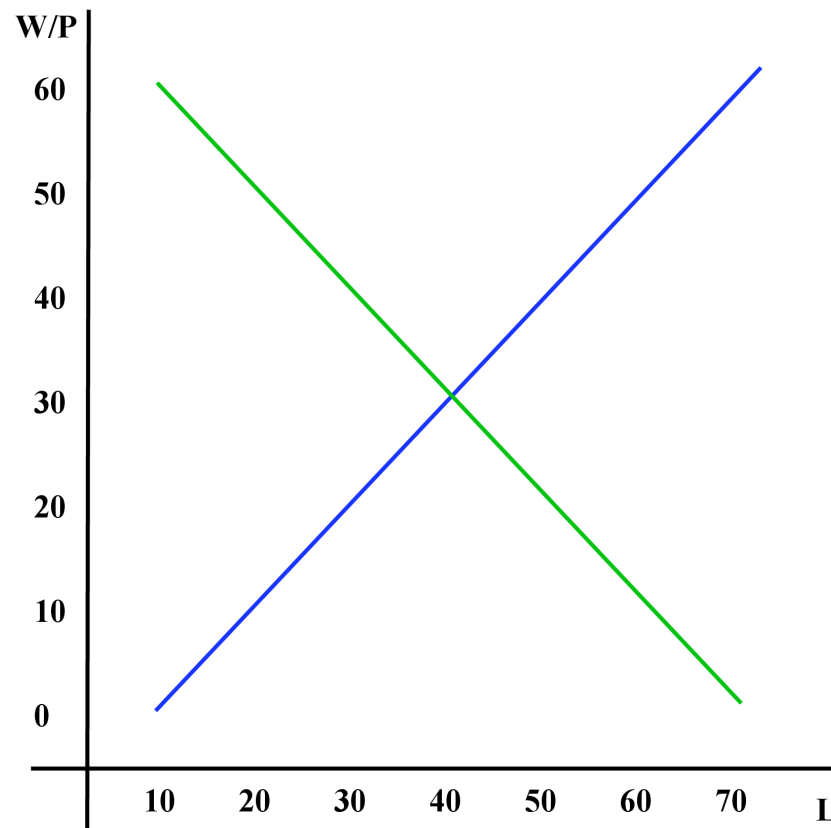
Answer 3. Now the real wage is 50. Firms want 20 workers, 60 workers want jobs, so we have $60 - 20 = 40$ excess supply of workers. We know that $50 - 30 = 20$ of that comes from structural unemployment via the minimum wage. Hence the remaining $40 - 20 = 20$ are cyclically unemployed workers.

So in total, there are $20 + 20 + 4 = 44$ unemployed workers with a labor force of 60. Thus total unemployment rate is $44/60 = 73.3\%$.
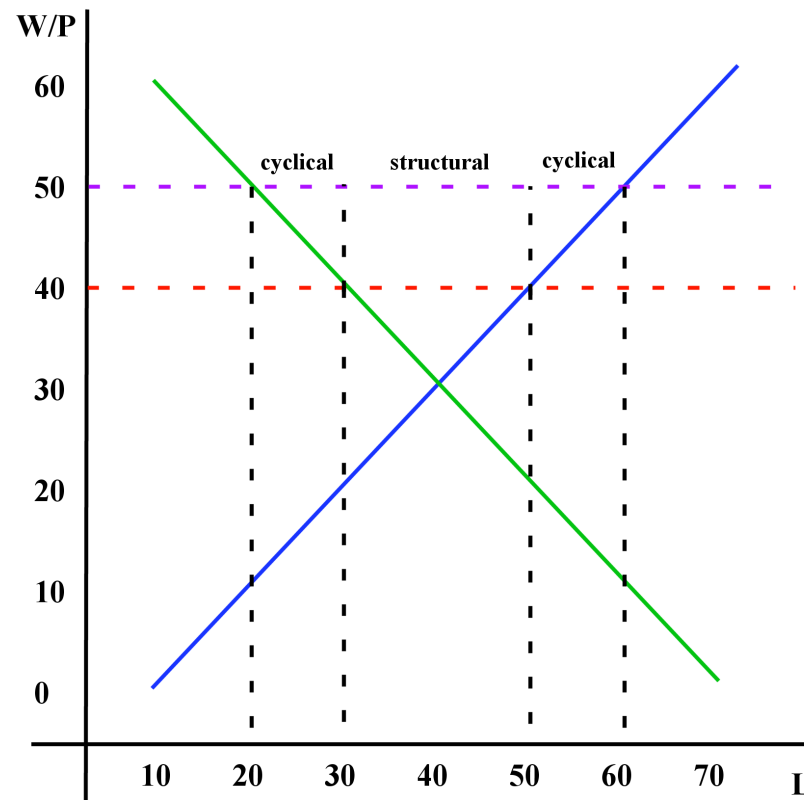
Problem 4. Define scarcity.

Answer 4. Scarcity means: "human wants are unlimited in relation to the available resources in the economy." Therefore society somehow must decide:

(a) What goods and services should the society produce?

(b) How should these goods and services be produced?

(c) For whom should we produce these goods and services?

The presence of scarcity is what motivates the study of economics – different economic systems address these questions differently, and the results can diverge dramatically.

Problem 5. Define microeconomics and macroeconomics.

Answer 5. Microeconomics studies the decisions made by one decision-making unit and economic conditions prevailing in one particular market or industry. A firm or a household are typical examples. We might look at the price of apples or the income of a single person.

Macroeconomics studies the behavior of aggregate economic variables, such as the aggregate level of output, the general price level, and overall employment. This is usually at the level of a country, but we can look at aggregate output in a state as well.

Problem 6. Define positive and normative statements.

Answer 6. Positive statements make no value judgment on whether any particular state or outcome is good or bad. An example of a positive statement is, "raising the minimum wage will lead to more unemployment." It makes no statement about whether this is a good outcome or a bad outcome, just that it is the outcome that follows analysis.

   Normative statements involve norms or value judgments. The person making the statement considers the present state of things or the outcome of a decision to be good or bad. An example of a positive statement is, "raising the minimum wage will lead to more unemployment, so raising the minimum wage is a bad idea." It is a subjective critique.

Problem 7. What does ceteris paribus mean?

Answer 7. It is Latin for "all else the same." In economics, we usually conduct analysis by changing one variable and seeing how that singular change affects other variables.

Problem 8. What is the fallacy of composition?

Answer 8. The fallacy that what is good for one person is good for everyone. For example, suppose you're at a football game and you decide to stand to see better because you're really short like me. That's good for you. But if *everyone* stands, then no one has a better view than they did when everyone was just sitting, plus everyone's feet now hurt.