

Place your name on the back of this sheet of paper and nowhere else. Staple your answers face up on the front of this sheet of paper. Failure to follow these directions will cost you 1 point. Your assignment will be typed, except graphs can be drawn by hand and mathematical equations can be done by hand. Failure to type it will cost you 10 points. If you use double-sided printing or print on the back of scrap paper, I will give you one additional point.

1) (20 points) Use the following information to calculate GDP, NDP, NI, PI, and DPI. Show all work and state what you did. If some data is missing, assume it is zero. Consumers buy \$2000 worth of goods. Firms build \$300 worth of factories. The government spends \$800. We import \$350 worth of goods and export \$400 worth of services. The buildings lose \$60 worth of value. Corporations pay \$70 worth of sales tax, \$120 worth of Social Security taxes, and \$80 worth of profit taxes. The government pays out \$200 worth of Social Security payments and individuals pay \$600 in income taxes.

2) (15 points) When you retire, it is best to have saved up 20 times your last annual income. Suppose you earned \$50,000 your first year working. If we make the simplifying assumption that your income will grow at the rate of inflation, so we can do all calculations in real terms, then you will need \$1,000,000 when you retire. If you plan to work for 45 years, and expect to make a 3% real return, then you will need to save \$876.91 per month. If you wait 10 years to start saving (so you are only saving for 35 years), then you will need to save \$1348.50 per month. (If you expect to get 6% real return, then the numbers are \$362.85 and \$701.90 respectively.) There are two reasons why waiting 10 years will cause you to have to save a lot more money. Explain both of the reasons.

3) (15 points) In Question #2, we said you wanted a real return of 3%. Suppose the inflation rate is 10%. What nominal interest rate will you need? Use the exact formula not the estimate. Why isn't your answer 13%?

4) (15 points each) For each of the following, explain what it means and how it helps the economy to grow.

- A) Limiting protectionism
- B) Educated populous

5) (20 points) Economic growth is generally considered to be good. However, it does have some bad side effects. What are two of these and how does faster economic growth cause them?