

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 10 points. 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) (25 points) Draw the supply and demand for gasoline. Since gasoline creates a negative externality, prove that the market will not produce the optimal amount. What do economists argue is the best way to reach the optimal point? Explain how that would achieve the optimal point. Illustrate that on the graph and explain why the curve moved as drawn.

2) (20 points) Give the economists' definition of a public good. Explain why they need government involvement in the market. Prove that police are not a public good.

3) (15 points) The book says that "income redistribution" is a non-economic reason for government. I say it is also an economic reason for government. Give my argument. (Obviously, too much income redistribution is bad.)

4) (20 points) Suppose a factory costs \$1000 to build. It will be able to make 500 items which can be sold for a profit of \$3 per unit. (Assume each item is sold to a different person). The factory will affect 400 people negatively, hurting each person \$2 each. Should the factory be built? Will the industry do it? Would the government do it? For all three parts, show all work and explain how you reached the conclusion.

5) (20 points) According to this article in Barrons (arguably, one of the two best financial publications), fracking is not profitable. Also watch the video of the [third time I was on WTRF](#). The numbers I am about to give are made up because I cannot find the original numbers, except for the \$5 billion. FYI, a cracker plant converts natural gas into ethylene to make plastics. Suppose the plant costs \$5 billion to build. When running, it will be able to sell 1 billion units at a profit of \$4.5/unit. The damage from climate change will affect all 8 billion people (the world population is expected to be that in November of this year) \$1 each. Should the cracker plant be built? Will they want to build it? Show all work and explain your logic. Will the government provide it? (Assume the 1 billion people who are both helped and hurt will vote for it because they are helped more than they are hurt.)

[https://www.barrons.com/articles/why-are-natural-gas-prices-high-because-fracking-isnt-really-p](https://www.barrons.com/articles/why-are-natural-gas-prices-high-because-fracking-isnt-really-profitable-51635439006)  
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