Assignment 7
DUE: START OF CLASS, THURSDAY, October 23rd

1) Use the formula \( E = MgR \) discussed in class to calculate the energy released by an meteorite 30 meters in radius hitting the Earth, approximately the size of the meteorite that caused the Tunguska event in Siberia in 1908. Assume the meteor has a density of 5000 kg/m\(^3\). \( R \), the radius of the Earth, is about 6,400 kilometers. Express your answer in Joules and in kilotons of TNT.

2) The TSA currently employs about 43,000 screeners, with average incomes around $32,000. Employ this information to estimate the total cost per year of airport screening, while including some reasonable estimates of fringes, benefits, and equipment. The cost of hardened cockpit doors was around $500 million, but it is essentially a one-time cost, so let’s divide that by 10 years to get a cost per year of $50 million. What kinds of terrorist activities do these two different security measures deter? In your opinion, which of these two anti-terrorism measures is more cost-effective, passenger screening or hardened cockpit doors?

3) Protesting students at the University of Wisconsin are alleged to have learned how to make ANFO from a Wisconsin Conservation Department booklet entitled *Pothole Blasting for Wildlife*. ANFO has also been used by the IRA and various Palestinian groups. Are there any useful steps society can take regarding the possession and dissemination of such information? If there are, what are the likely consequences of such measures?