1) Consider an exchange economy with two goods and m identical consumers, each with utility function $U(x_1, x_2) = (x_1)^2 + (x_2)^2$ and initial endowment $\omega = (1, 1)$.

   (a) When $m = 2$, what are the competitive equilibria?

   (b) When $m > 2$, what are the competitive equilibria?

   (c) If $m = 2$, but the endowments are $\omega_a = (\frac{1}{2}, \frac{1}{2})$ and $\omega_b = (\frac{3}{2}, \frac{3}{2})$, what are the competitive equilibria?

2) MWG 15.B.10

3) MWG 15.D.6

4) MWG 15.D.9

5) Consider n agents with utility function $u_i(x_i, G) = \ln x_i + \alpha_i \ln G$. Suppose that each agent has an endowment of the private good $w_i = 1$ and no public good. Suppose that the technology is linear, i.e. $f(z) = z$ for all $z \geq 0$.

   (a) What is the Lindahl equilibrium?

   (b) Consider the case when there are 3 agents and $\alpha_i = 1$ for $i = 1, 2, 3$. Suppose we wish a social planner to implement this allocation, but she cannot observe α_i. All agents must report their value of α_i to the planner. Suppose agents 2 and 3 report the truth, that $\alpha_i = 1$. Show that agent 1 can benefit from misreporting his value of α_1.

   (c) (Optional) Can you think of a way to implement the Lindahl equilibrium?