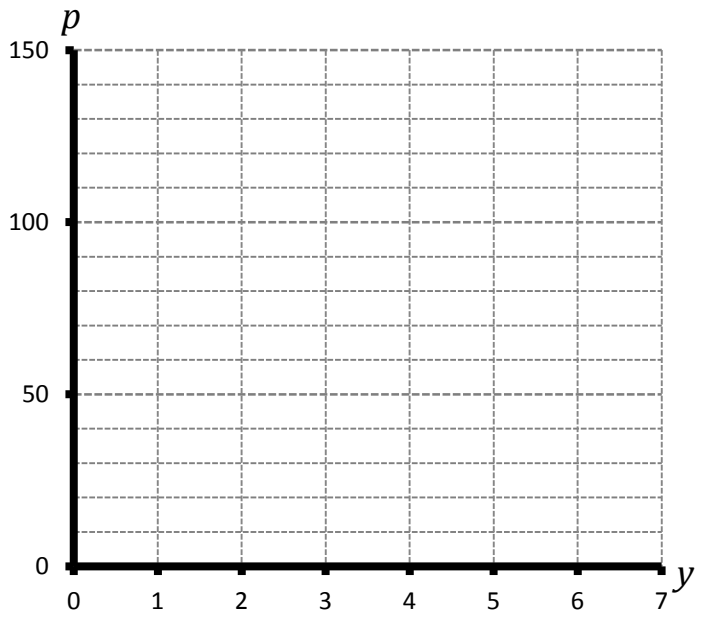
Econ 100C: Principles of Economics NAME: _____

Problem set 5, due Thursday 11/6/2014

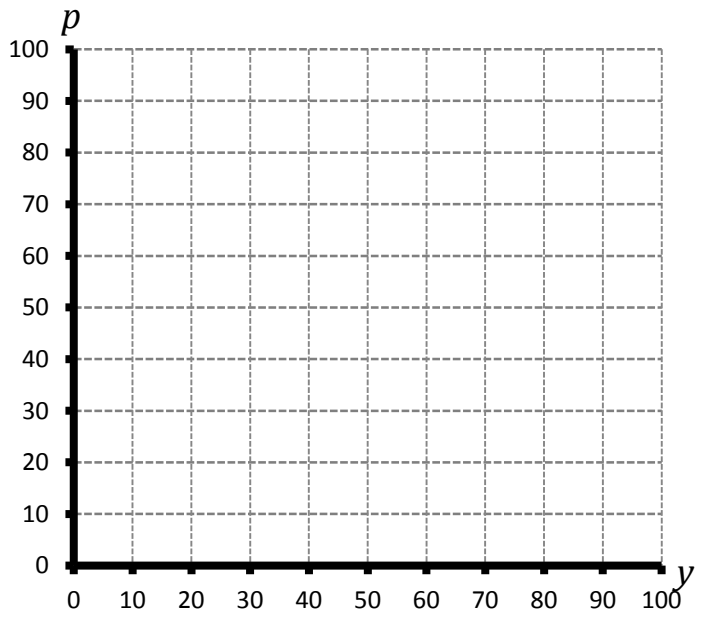
1. Public good, discrete Four roommates are deciding how many lava lamps to get for their common room. Suppose that, for their purposes, lava lamps are entirely non-rival and non-excludable, and that each lava lamp costs $30. Each roommate has the same individual total benefit schedule, given in dollar amounts in the column below marked TB_i. Fill in the missing information in the table below, i.e. the columns for MB_i (marginal individual benefit) MSB (marginal social benefit), TSB (total social benefit), TC (total cost), and TES (total economic surplus). If there is no possibility of collective action, and each roommate must decide privately how many lava lamps to buy, then the equilibrium quantity will be _____. However, the socially optimal quantity of lava lamps is _____. Thus, the total amount of economic surplus that can be gained from collective action is _____.

Q	TB_i	MB_i	MSB	TSB	TC	TES
1	35					
2	60					
3	80					
4	95					
5	105					
6	110					
7	110					



On the graph to the left, draw the marginal individual benefit (MB_i) and marginal social benefit (MSB) 'curves'. Mark the equilibrium without coordination (y^*) and the optimum (y^o). Shade in the area that represents the difference in economic surplus between the uncoordinated equilibrium and the optimum.

2. Public good, continuous. Five roommates are deciding on the size of the TV screen they will get for their common room. Each of the five roommates has the individual marginal benefit function $MB_i = 20 - \frac{1}{5}y$, where y is the width of the screen, in inches. The marginal cost of a screen-inch is constant at $MC = 10$ dollars; that is, a y-inch TV costs $10y$ dollars. If there is no possibility of collective action, and each person must decide privately how much to donate to the 'TV fund', then the equilibrium TV size will be _____, and total economic surplus will be _____. However, the socially optimal TV size is _____, which gives a total economic surplus of _____.



On the graph to the left, draw the marginal individual benefit (MB_i) and marginal social benefit (MSB) curves. Mark the equilibrium without coordination (y^*) and the optimum (y^o). Shade in the area that represents the difference in economic surplus between the uncoordinated equilibrium and the optimum.

Explain as clearly as you can why the uncoordinated equilibrium is an equilibrium, and why the optimum is an optimum. Try to not rely entirely on jargon (e.g. marginal this is equal to marginal that), but rather, to explain it so that someone who hadn't taken an economics course could understand.