Problem Set 4

Note: We will discuss the first problem in the problem-solving session. However, you still need to write your own solution to every problem.

For both of the following problems:

- Your answer needs to work for any h and should not depend on h. You can prove your answer with a picture, but you must explain how you arrive at the picture, what each part of the picture means, and how the picture implies your answer.
- **Hint**: Try figuring out a similar geometric intuition as that discussed in class. For Problem 2, you might want to write the expected utility u_i in terms of two areas in the picture.

Problem 1: Individual efficiency with randomized allocation.....(10 points)
Suppose in an equilibrium of a first-price auction the highest bid of the opponents of bidder i follows a uniform distribution on $[0, h]$. What is the individual efficiency? Clearly state your η and explain your answer.

Problem 2: Individual efficiency with randomized allocation.....(10 points)
Suppose in an equilibrium of an all-pay auction the highest bid of the opponents of bidder i follows a uniform distribution on $[0, h]$. What is the individual efficiency? Clearly state your η and explain your answer.